

Jan please.

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SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Lynda Guo Examiner #: 79756 Date: 11/12/02
Art Unit: 1651 Phone Number: 301-605-1200 Serial Number: 09/979,507
Mail Box and Bldg/Room Location: 11B01 (cm1) Results Format Preferred (circle): PAPER DISK E-MAIL
office: 11A16

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: "Use of collagenase 3 for detecting destructive diseases of the ..."

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Jan Delaval
Reference Librarian
Biotechnology & Chemical Library
CM1 1E07 - 703-308-4498
jan.delaval@uspto.gov

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Type of Search

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Date Completed: 11/13/02 Litigation _____ Lexis/Nexis _____
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Online Time: + 75 Other _____ Other (specify) _____

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STRUCTURE FILE UPDATES: 12 NOV 2002 HIGHEST RN 473382-28-4
DICTIONARY FILE UPDATES: 12 NOV 2002 HIGHEST RN 473382-28-4

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP
PROPERTIES for more information. See STN Note 27, Searching Properties
in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

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L99 ANSWER 1 OF 5 REGISTRY COPYRIGHT 2002 ACS
RN 176742-44-2 REGISTRY
CN Collagenase 3, pro- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Pro-matrix metalloproteinase 13
CN Pro-MMP-13
CN Procollagenase 3
MF Unspecified
CI MAN
SR CA
LC STN Files: BIOSIS, CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
17 REFERENCES IN FILE CA (1962 TO DATE)
18 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:245992

REFERENCE 2: 137:183519

REFERENCE 3: 137:72769

REFERENCE 4: 136:367781

REFERENCE 5: 135:329847

REFERENCE 6: 133:307319

REFERENCE 7: 133:234253

REFERENCE 8: 132:209

REFERENCE 9: 130:180849

REFERENCE 10: 129:121650

L99 ANSWER 2 OF 5 REGISTRY COPYRIGHT 2002 ACS

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Reference Librarian
Biotechnology & Chemical Library
CM1 1E07 = 703-308-4498
jan.delaval@uspto.gov

RN 175449-82-8 REGISTRY
CN Collagenase 3 (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Matrix metalloprotease 13
CN Matrix metalloproteinase-13
CN MMP-13
MF Unspecified
CI MAN
SR CA
LC STN Files: BIOSIS, BIOTECHNO, CA, CAPLUS, EMBASE, TOXCENTER, USPAT2,
USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
605 REFERENCES IN FILE CA (1962 TO DATE)
5 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
616 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:294965
REFERENCE 2: 137:293342
REFERENCE 3: 137:292873
REFERENCE 4: 137:290041
REFERENCE 5: 137:289309
REFERENCE 6: 137:288625
REFERENCE 7: 137:279084
REFERENCE 8: 137:278978
REFERENCE 9: 137:276485
REFERENCE 10: 137:274844

L99 ANSWER 3 OF 5 REGISTRY COPYRIGHT 2002 ACS

RN 161384-17-4 REGISTRY
CN Proteinase, matrix metallo-, MT-MMP-1 (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Matrix metalloprotease 14
CN Matrix metalloproteinase 14
CN Matrix metalloproteinase MT 1
CN Matrix metalloproteinase MT-MMP-1
CN Matrix metalloproteinase MT1-MMP
CN Membrane type 1 matrix metalloproteinase
CN Membrane-type-1 matrix metalloprotease
CN Membrane-type matrix metalloprotease 1
CN Membrane-type matrix metalloproteinase 1
CN Membrane-type matrix metalloproteinase MT1-MMP
CN Membrane-type metalloproteinase MT1-MMP
CN MMP-14
CN MT-MMP1
CN MT1-MMP
MF Unspecified
CI MAN
SR CA
LC STN Files: AGRICOLA, BIOSIS, CA, CAPLUS, CIN, TOXCENTER, USPAT2,
USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
616 REFERENCES IN FILE CA (1962 TO DATE)

3 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
624 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:292889
REFERENCE 2: 137:292189
REFERENCE 3: 137:277060
REFERENCE 4: 137:276734
REFERENCE 5: 137:274906
REFERENCE 6: 137:273251
REFERENCE 7: 137:260925
REFERENCE 8: 137:260888
REFERENCE 9: 137:260588
REFERENCE 10: 137:259321

L99 ANSWER 4 OF 5 REGISTRY COPYRIGHT 2002 ACS

RN **156656-98-3** REGISTRY

CN Collagenase (human clone I9c9 isoenzyme 3 reduced) (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 21: PN: WO0166766 SEQID: 21 unclaimed protein
CN Collagenase 3 (human cDNA)
CN Collagenase 3 (human clone T-coll)
CN Collagenase-3 (human breast carcinoma clone I9c9)
CN Collagenase-3 (human T cell (lymphocyte) clone T-coll)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
4 REFERENCES IN FILE CA (1962 TO DATE)
4 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 135:252789
REFERENCE 2: 128:306745
REFERENCE 3: 126:259888
REFERENCE 4: 121:131123

L99 ANSWER 5 OF 5 REGISTRY COPYRIGHT 2002 ACS

RN **146480-35-5** REGISTRY

CN Gelatinase A (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 72 kDa Gelatinase
CN 72 kDa Gelatinase type A
CN 72,000-Mol.-wt. gelatinase
CN 72,000-Mol.-wt. type IV collagenase
CN Collagenase IV
CN Collagenase type IV

CN E.C. 3.4.24.24
CN Matrix metalloprotease 2
CN Matrix metalloproteinase 2
CN MMP 2
CN Type IV collagen metalloproteinase
CN Type IV collagenase
CN Type IV collagenase/gelatinase
MF Unspecified
CI MAN
SR CA
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO,
CA, CAPLUS, CEN, CIN, EMBASE, PROMT, TOXCENTER, USPAT2, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

3008 REFERENCES IN FILE CA (1962 TO DATE)
9 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
3029 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:294972
REFERENCE 2: 137:292889
REFERENCE 3: 137:292888
REFERENCE 4: 137:292871
REFERENCE 5: 137:292752
REFERENCE 6: 137:292728
REFERENCE 7: 137:292723
REFERENCE 8: 137:292536
REFERENCE 9: 137:292502
REFERENCE 10: 137:292435

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FILE COVERS 1907 - 13 Nov 2002 VOL 137 ISS 20
FILE LAST UPDATED: 12 Nov 2002 (20021112/ED)

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L98 ANSWER 1 OF 28 HCAPLUS COPYRIGHT 2002 ACS
 AN 2002:676215 HCAPLUS
 DN 137:215820
 TI Preparation and application of antibodies to neoepitope generated by
collagenase cleavage of type II collagen
 IN Billinghamurst, R. Clark; McIlwraith, C. Wayne
 PA Colorado State University Research Foundation, USA
 SO PCT Int. Appl., 32 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C12Q
 CC 15-3 (Immunochemistry)
 Section cross-reference(s): 9

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002068675	A2	20020906	WO 2002-US5790	20020225
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI US 2001-271208P P 20010223

AB A polyclonal anti-neoepitope antibody (234CEQ) is described that recognizes **collagenase**-cleaved, type II collagen fragments in horses and dogs. The antibody **detects** increases in type II collagen cleavage in diseased equine articular **cartilage**. Using this antibody, a method is provided for **detecting cartilage** degrading in the **joints** of horses.

ST antibody type II collagen cleavage product

IT Antibodies
 RL: ARG (Analytical reagent use); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (234CEQ; to neoepitope generated by **collagenase** cleavage of type II collagen)

IT **Arthritis**
 (antibody **detection** of **collagenase** cleavage of type II collagen in)

IT Interleukin 1
 RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
 (antibody **detection** of **collagenase** cleavage of type II collagen induced by)

IT Cattle
 Dog (Canis familiaris)
 Horse (Equus caballus)
 Mouse
 Rat
 (antibody **detection** of **collagenase** cleavage of type II collagen of)

IT **Cartilage**
 (articular; antibody **detection** of **collagenase** cleavage of type II collagen in)

- IT Immunoassay
(enzyme-linked immunosorbent assay; antibody **detection** of
neoepitope generated by **collagenase** cleavage of type II
collagen)
- IT Immunoassay
(immunoblotting; antibody **detection** of neoepitope generated
by **collagenase** cleavage of type II collagen)
- IT **Diagnosis**
(immunodiagnosis; of **arthritis** in horse and dog by antibodies
to neoepitope generated by **collagenase** cleavage of type II
collagen)
- IT Immunoassay
(immunohistochem.; antibody **detection** of neoepitope generated
by **collagenase** cleavage of type II collagen)
- IT Epitopes
(neo-; of type II collagen generated by **collagenase** cleavage
is **detected** by antibodies)
- IT Collagens, biological studies
RL: ADV (Adverse effect, including toxicity); ANT (Analyte); DGN
(Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES
(Uses)
(type II; antibodies to neoepitope generated by **collagenase**
cleavage of)
- IT **175449-82-8, Collagenase 3**
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(antibody **detection** of cleavage of type II collagen by)
- IT **161384-17-4, MMP-14**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(antibody **detection** of cleavage of type II collagen by)
- IT 454174-56-2
RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological
study); USES (Uses)
(in prepn. of antibodies to neoepitope generated by **collagenase**
cleavage of type II collagen)
- L98 ANSWER 2 OF 28 HCAPLUS COPYRIGHT 2002 ACS
AN 2002:422769 HCAPLUS
DN 137:245992
TI Characterisation of the cell type-specificity of **collagenase**
3 mRNA expression in comparison with **membrane**
type 1 matrix **metalloproteinase** and **gelatinase**
A in the **synovial membrane** in
rheumatoid arthritis
- AU Petrow, P. K.; Wernicke, D.; Westhoff, C. Schulze;
Hummel, K. M.; Brauer, R.; Kriegsmann, J.; Gromnica-Ihle, E.;
Gay, R. E.; Gay, S.
- CS Institute of Pathology, University of Jena, Jena, D-07740, Germany
SO Annals of the Rheumatic Diseases (2002), 61(5), 391-397
CODEN: ARDIAO; ISSN: 0003-4967
PB BMJ Publishing Group
DT Journal
LA English
CC 14-11 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 3
- AB Objective: To study the pattern and cell type-specificity of
collagenase 3, membrane-type 1 matrix
metalloproteinase (MT1-MMP), and
gelatinase A mRNA expression in the
synovial membrane in **rheumatoid**
arthritis (RA). Methods: The **mRNA** expression of
collagenase 3, MT1-MMP, and
gelatinase A was characterized by northern blot anal.,
reverse transcriptase-polymerase chain reaction, and in situ

hybridization. In situ hybridization was performed in combination with the immunohistochem. detection of cell type-specific antigens.

Results: **Synovial membrane** specimens from 19 of 21 patients with RA expressing **collagenase 3 mRNA** were pos. for **MT1-MMP** and **gelatinase**

A mRNA. In control samples from patients without destructive inflammatory joint diseases **collagenase 3 mRNA** was not expressed and only in two of seven cases

was a coexpression of **MT1-MMP** and **gelatinase A mRNA** detected. Fibroblast-like cells of the **synovial membrane** were the predominant source of **collagenase 3**, **MT1-MMP**, and

gelatinase A mRNA expression in lining and sublining layers as well as at the **synovial membrane-cartilage** interface. Addnl., the expression of **MT1-MMP mRNA** was detected in endothelial cells.

Collagenase 3 mRNA expression was found in about 5% of CD68 pos. macrophages. Conclusions: **Collagenase 3 mRNA** is expressed simultaneously with **MT1-MMP** and **gelatinase A mRNA** in

fibroblast-like cells of the **synovial membrane** in RA. These results suggest (a) a broad extracellular proteolytic potential of fibroblast-like cells and (b) an important role of cell surface assocd.

procollagenase 3 activation by **MT1-MMP** and **gelatinase A** for cartilage degrdn. by invading fibroblast-like cells.

ST **collagenase 3 MT1MMP gelatinase A**
mRNA synovium rheumatoid arthritis

IT Fibroblast

Human

Macrophage

Rheumatoid arthritis

Synovial membrane

Transcription, genetic

(characterization of cell type-specificity of **collagenase**

3 mRNA expression in comparison with **membrane**

type 1 matrix **metalloproteinase** and **gelatinase**

A in **synovial membrane** in

rheumatoid arthritis)

IT Gene, animal

mRNA

RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)

(characterization of cell type-specificity of **collagenase**

3 mRNA expression in comparison with **membrane**

type 1 matrix **metalloproteinase** and **gelatinase**

A in **synovial membrane** in

rheumatoid arthritis)

IT Blood vessel

(endothelium; characterization of cell type-specificity of

collagenase 3 mRNA expression in comparison

with **membrane** type 1 matrix **metalloproteinase** and

gelatinase A in **synovial membrane**

in **rheumatoid arthritis**)

IT Post-translational processing

(proteolytic, **procollagenase 3**; characterization of cell

type-specificity of **collagenase 3 mRNA**

expression in comparison with **membrane** type 1 matrix

metalloproteinase and **gelatinase A** in

synovial membrane in **rheumatoid**

arthritis in relation to)

IT 176742-44-2, **Procollagenase 3**

RL: ADV (Adverse effect, including toxicity); BSU (Biological study,

unclassified); BIOL (Biological study)
(activation; characterization of cell type-specificity of
collagenase 3 mRNA expression in comparison
with membrane type 1 matrix metalloproteinase and
gelatinase A in synovial membrane
in rheumatoid arthritis in relation to)

IT 146480-35-5, Gelatinase A 161384-17-4
, Matrix metalloproteinase MT-MMP-1
175449-82-8, Collagenase 3

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(characterization of cell type-specificity of collagenase
3 mRNA expression in comparison with membrane
type 1 matrix metalloproteinase and gelatinase
A in synovial membrane in
rheumatoid arthritis)

RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Arnett, F; Arthritis Rheum 1988, V31, P315 MEDLINE
- (2) Balbin, M; APMIS 1999, V107, P45 HCAPLUS
- (3) Butler, G; J Biol Chem 1998, V273, P871 HCAPLUS
- (4) Gay, S; Methods Enzymol 1987, V145, P148 HCAPLUS
- (5) Haas, T; J Biol Chem 1998, V273, P3604 HCAPLUS
- (6) Hiraoka, N; Cell 1998, V95, P365 HCAPLUS
- (7) Hofmann, U; Int J Cancer 2000, V87, P12 HCAPLUS
- (8) Imai, K; Am J Pathol 1997, V151, P245 HCAPLUS
- (9) Imanishi, Y; Hum Pathol 2000, V31, P895 HCAPLUS
- (10) Johansson, N; Am J Pathol 1997, V151, P499 HCAPLUS
- (11) Knaeuper, V; J Biol Chem 1996, V271, P1544
- (12) Knaeuper, V; J Biol Chem 1996, V271, P17124 HCAPLUS
- (13) Knaeuper, V; J Biol Chem 1997, V272, P7608
- (14) Konttinen, Y; Ann Rheum Dis 1999, V58, P691 HCAPLUS
- (15) Konttinen, Y; Matrix Biol 1998, V17, P585 HCAPLUS
- (16) Konttinen, Y; Matrix Biol 1999, V18, P401 HCAPLUS
- (17) Kriegsmann, J; Lab Invest 1994, V71, P911 HCAPLUS
- (18) Lindy, O; Arthritis Rheum 1997, V40, P1391 HCAPLUS
- (19) Mitchell, P; J Clin Invest 1996, V97, P761 HCAPLUS
- (20) Moldovan, F; Arthritis Rheum 1997, V40, P1653 HCAPLUS
- (21) Nagase, H; Biol Chem 1997, V378, P151 HCAPLUS
- (22) Pap, T; Arthritis Rheum 2000, V43, P1226 HCAPLUS
- (23) Pendas, A; Genomics 1997, V40, P222 HCAPLUS
- (24) Schulze Westhoff, C; Arthritis Rheum 1999, V42, P1517
- (25) Strongin, A; J Biol Chem 1995, V270, P5331 HCAPLUS
- (26) Tardif, G; Biochem J 1997, V323, P13 HCAPLUS
- (27) Tetlow, L; Br J Rheumatol 1998, V37, P64 HCAPLUS
- (28) Uria, J; J Biol Chem 1998, V273, P9769 HCAPLUS
- (29) Urio, J; Cancer Res 1997, V57, P4882
- (30) Vaalamo, M; J Invest Dermatol 1997, V109, P96 MEDLINE
- (31) Werb, Z; Cell 1997, V91, P439 HCAPLUS
- (32) Wernicke, D; J Rheumatol 1996, V23, P590 HCAPLUS
- (33) Will, H; J Biol Chem 1996, V271, P17119 HCAPLUS
- (34) Woessner, J; Ann NY Acad Sci 1994, V732, P11 HCAPLUS
- (35) Yamanaka, H; Lab Invest 2000, V80, P677 HCAPLUS

L98 ANSWER 3 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:240515 HCAPLUS

DN 136:273185

TI Use of transcription factors for treating inflammation and other diseases

IN Oettgen, Peter; Libermann, Towia; Goldring, Mary

PA Beth Israel Deaconess Medical Center, USA

SO PCT Int. Appl., 112 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM A61K
 CC 1-7 (Pharmacology)
 Section cross-reference(s): 9, 14

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002024144	A2	20020328	WO 2001-US29340	20010920
	WO 2002024144	A3	20020606		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2001092818	A5	20020402	AU 2001-92818	20010920
PRAI	US 2000-234379P	P	20000920		
	WO 2001-US29340	W	20010920		
AB	<p>The present invention provides a method of treating inflammation in a mammal comprising altering the activity of a transcription factor involved in the inflammatory response. In preferred methods, the transcription factor is expressed in said mammal in response to a pro-inflammatory agent the transcription factor is not normally expressed, or is expressed at a low level, in the absence of the pro-inflammatory agent. The invention also relates to the use of transcription factors to screen compds. that are capable of reducing inflammation. The invention also relates to the use of transcription factors in methods of diagnosing the presence of an inflammatory disease in a tissue of a mammal and methods of monitoring the treatment of an inflammatory disease in a tissue of a mammal.</p>				
ST	transcription factor modulation inflammation disease treatment screening				
IT	Transcription factors				
	RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (AP-1 (activator protein 1); use of methods of altering transcription factors for treating and diagnosing inflammation and other diseases in relation to response to pro-inflammatory agents)				
IT	Transcription factors				
	RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (C/EBP (CCAAT box/enhancer element-binding protein); use of methods of altering transcription factors for treating and diagnosing inflammation and other diseases in relation to response to pro-inflammatory agents)				
IT	Gene, animal				
	RL: BSU (Biological study, unclassified); BIOL (Biological study) (COL2A1, expression; use of methods of altering transcription factors for treating and diagnosing inflammation and other diseases in relation to response to pro-inflammatory agents)				
IT	Cytokine receptors				
	RL: BSU (Biological study, unclassified); BIOL (Biological study) (DR5 (death receptor 5), gene encoding, expression; use of methods of altering transcription factors for treating and diagnosing inflammation and other diseases in relation to response to pro-inflammatory agents)				
IT	Transcription factors				
	RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ELK-1; use of methods of altering transcription factors for treating and diagnosing inflammation and other diseases in relation to response to pro-inflammatory agents)				

- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ERG; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ESE-1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ESE-2; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ESE-3; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (Egr-1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (Erp-1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (FLI-1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Orphan receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study) (MINOR, gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (NF-.kappa.B (nuclear factor .kappa.B), p50 and p65 subunits, ESE-1 promoter binding by; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (PU.1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use,

- unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(SAP-1; use of methods of altering transcription factors for treating
and **diagnosing** inflammation and other diseases in relation to
response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use,
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(STAT; use of methods of altering transcription factors for treating
and **diagnosing** inflammation and other diseases in relation to
response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use,
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(TEL-1; use of methods of altering transcription factors for treating
and **diagnosing** inflammation and other diseases in relation to
response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use,
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(TEL-2; use of methods of altering transcription factors for treating
and **diagnosing** inflammation and other diseases in relation to
response to pro-inflammatory agents)
- IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(angiogenesis-assocd.; use of methods of altering transcription factors
for treating and **diagnosing** inflammation and other diseases
in relation to response to pro-inflammatory agents)
- IT Antiarteriosclerotics
(antiatherosclerotics; use of methods of altering transcription factors
for treating and **diagnosing** inflammation and other diseases
in relation to response to pro-inflammatory agents)
- IT Gene, animal
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(apoptosis-assocd.; use of methods of altering transcription factors
for treating and **diagnosing** inflammation and other diseases
in relation to response to pro-inflammatory agents)
- IT Sepsis
(bacterial; use of methods of altering transcription factors for
treating and **diagnosing** inflammation and other diseases in
relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use,
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(c-ets-1; use of methods of altering transcription factors for treating
and **diagnosing** inflammation and other diseases in relation to
response to pro-inflammatory agents)
- IT Gene, animal
RL: BSU (Biological study, unclassified); BUU (Biological use,
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(c-ets-2; use of methods of altering transcription factors for treating
and **diagnosing** inflammation and other diseases in relation to
response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(c-rel, ESE-1 binding to; use of methods of altering transcription
factors for treating and **diagnosing** inflammation and other
diseases in relation to response to pro-inflammatory agents)
- IT **Connective tissue**
(disease; use of methods of altering transcription factors for treating
and **diagnosing** inflammation and other diseases in relation to
response to pro-inflammatory agents)
- IT Mutation
(dominant neg.; use of methods of altering transcription factors for

- treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Blood vessel
Blood vessel
(endothelium, cell, transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Toxins
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(endotoxins, inflammatory agents; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Gene
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(expression, inflammatory; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Promoter (genetic element)
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(for ESE-1 gene, NF-.kappa.B binding by; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Promoter (genetic element)
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(for transcription factor genes; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Digestive tract
(gastroenteritis; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(gene c-ets; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Fas **antigen**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Angiogenesis
Apoptosis
(genes assocd. with; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Neuroglia
(glioma, transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT **Synovial fluid**
(inflammation of and transcription factors detn. in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to

- pro-inflammatory agents)
- IT Blood
(inflammation of; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Interleukin 1
Interleukin 15
Interleukin 17
Interleukin 18
Interleukin 1.beta.
Leukemia inhibitory factor
Lipopolysaccharides
Tumor necrosis factors
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(inflammatory agent; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Animal virus
(inflammatory agents; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Cytokines
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)
(inflammatory agents; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Kidney, disease
(nephritis; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Mutation
(of ESE-1 promoter NF-.kappa.B binding site; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Artery, disease
(restenosis; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Connective tissue
(scleroderma; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Muscle
(smooth, cell, transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Brain, disease
(stroke; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Synovial membrane
(synoviocyte, transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Lupus erythematosus
(systemic; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

- IT Gene, animal
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(transcription factor-encoding; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Animal tissue
Blood analysis
Cerebrospinal fluid
Urine analysis
(transcription factors detn. in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Animal cell
Chondrocyte
Fibroblast
Monocyte
Osteoblast
(transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Artery, disease
(transplantation-assocd. arteriopathy; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Alzheimer's disease
Anti-Alzheimer's agents
Anti-inflammatory agents
Antiarthritics
Antidiabetic agents
Antipyretics
Antirheumatic agents
Atherosclerosis
Autoimmune disease
DNA viruses
Dermatitis
Diabetes mellitus
Diagnosis
Drug screening
Fever and Hyperthermia
Human
Inflammation
Multiple sclerosis
Osteoarthritis
Psoriasis
Rheumatic diseases
Rheumatoid arthritis
Transplant rejection
(use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT High-mobility group proteins
Transcription factors
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)
(use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT **Antisense RNA**

Organic compounds, biological studies

Peptides, biological studies

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

IT Blood vessel, disease

(vasculitis; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

IT 147172-61-0, AggreCANase

RL: BSU (Biological study, unclassified); BIOL (Biological study) (ADAM-TS4, gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

IT 405150-12-1, AggreCANase 2

RL: BSU (Biological study, unclassified); BIOL (Biological study) (ADAM-TS5, gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

IT 9001-12-1, Matrix **metalloproteinase** 1 9001-84-7, Phospholipase A2 79955-99-0, Matrix **metalloproteinase** 3 141907-41-7,

Matrix **metalloproteinase** 146480-36-6, Matrix **metalloproteinase** 9 161384-17-4, Matrix

metalloproteinase 14 175449-82-8, Matrix **metalloproteinase** 13 329900-75-6, Cyclooxygenase 2

RL: BSU (Biological study, unclassified); BIOL (Biological study) (gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

IT 125978-95-2, Nitric oxide synthase

RL: BSU (Biological study, unclassified); BIOL (Biological study) (inducible, gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

IT 106956-32-5, Oncostatin M

RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study) (inflammatory agent; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

IT 159606-08-3, I.kappa.B Kinase 165245-96-5, p38 Kinase

RL: BSU (Biological study, unclassified); BIOL (Biological study) (transcription factor expression blockade by; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

IT 406617-21-8 406617-22-9 406617-23-0 406617-24-1 406617-25-2
406617-26-3 406617-27-4 406617-28-5 406617-29-6 406617-30-9
406617-31-0 406617-32-1 406617-33-2 406617-34-3 406617-35-4
406617-36-5 406617-37-6 406617-38-7 406617-39-8 406617-40-1
406617-41-2 406617-42-3 406617-43-4 406617-44-5 406617-45-6
406617-46-7 406617-47-8

RL: PRP (Properties)

(unclaimed sequence; use of transcription factors for treating inflammation and other diseases)

DN 137:77187
TI Stimulation of **collagenase 3** expression in
synovial fibroblasts of patients with **rheumatoid**
arthritis by contact with a three-dimensional collagen matrix or
with normal **cartilage** when coimplanted in NOD/SCID mice
AU **Wernicke, Dirk; Schulze-Westhoff, Claudia; Petrow,**
Peter; Brauer, Rolf; Zacher, Josef; Gay, Steffen; Gromnica-Ihle,
Erika
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SO Arthritis & Rheumatism (2002), 46(1), 64-74
CODEN: ARHEAW; ISSN: 0004-3591
PB Wiley-Liss, Inc.
DT Journal
LA English
CC 14-11 (Mammalian Pathological Biochemistry)
AB Objective. To study the expression of **collagenase 3** (
matrix metalloproteinase 13 [MMP-
13]) and **collagenase 1 (MMP-1)** in
synovial fibroblasts from patients with **rheumatoid**
arthritis (RA) when cultured within 3-dimensional collagen gels or
coimplanted with normal **cartilage** in immunodeficient NOD/SCID
mice. Methods. **MRNA (mRNA)** and protein expression of
collagenase 3 and **collagenase 1** were
characterized in **synovial** and skin fibroblasts by Northern blot
and Western blot anal. The **mRNA** expression of both
collagenases in cell-**cartilage** implants in NOD/SCID mice
was investigated by in situ hybridization in combination with
immunohistochem. of human fibroblasts. Results. **Synovial**
fibroblasts coimplanted with normal **cartilage** in NOD/SCID mice
deeply invaded adjacent **cartilage** tissue. In this in vivo
system of **cartilage** destruction, **collagenase 3**
mRNA was induced in **synovial** fibroblasts at sites of
cartilage erosion, while the expression of **collagenase 1**
mRNA could not be detected. Culture of **synovial**
fibroblasts within 3-dimensional collagen gels was assocd. with a marked
increase in **collagenase 3 mRNA** expression
and proenzyme prodn. This stimulatory effect was 1 order of magnitude
higher in comparison with a 2-4-fold increase upon treatment with
interleukin-1.beta. or tumor necrosis factor .alpha.. In contrast,
mRNA expression and proenzyme prodn. of **collagenase 1**
were increased strongly, and to a similar extent, either by contact with
3-dimensional collagen or by proinflammatory cytokines. Conclusion. The
expression of **collagenase 3**, in contrast to that of
collagenase 1, is preferentially stimulated in **synovial**
fibroblasts by 3-dimensional collagen rather than by proinflammatory
cytokines. The induction of **collagenase 3** by
cell-matrix interactions represents a potential mechanism contributing to
the invasive phenotype of **synovial** fibroblasts at sites of
synovial invasion into **cartilage** in RA.
ST **rheumatoid arthritis collagenase 3**
synovia fibroblast collagen cartilage
IT **mRNA**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**MMP-13; collagenase 3**
expression stimulated in **synovial** fibroblasts of patients
with **rheumatoid arthritis** by contact with a
3-dimensional collagen matrix or normal **cartilage**)
IT Fibroblast
Rheumatoid arthritis
Synovial membrane
(**collagenase 3** expression stimulated in
synovial fibroblasts of patients with **rheumatoid**

- arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage**)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**collagenase 3** expression stimulated in **synovial** fibroblasts of patients with **rheumatoid arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage**)
- IT Human
(**collagenase 3** expression stimulated in **synovial** fibroblasts of patients with **rheumatoid arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage** when coimplanted in NOD/SCID mice)
- IT Tumor necrosis factors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(cytokine effect on **collagenase 3** expression in **synovial** fibroblasts of patients with **rheumatoid arthritis**)
- IT Interleukin 1.beta.
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(cytokine effect on **collagenase 3** expression in **synovial** fibroblasts of patients with **rheumatoid arthritis** in contact with collagen or normal **cartilage**)
- IT **Cartilage**
(**degeneration**; **collagenase 3** expression stimulated in **synovial** fibroblasts of patients with **rheumatoid arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage**)
- IT Cytokines
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(inflammatory; cytokine effect on **collagenase 3** expression in **synovial** fibroblasts of patients with **rheumatoid arthritis** in contact with collagen or normal **cartilage**)
- IT **175449-82-8, Collagenase 3**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(**collagenase 3** expression stimulated in **synovial** fibroblasts of patients with **rheumatoid arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage**)

RE.CNT 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Balbin, M; APMIS 1999, V107, P45 HCAPLUS
- (2) Billingham, R; J Clin Invest 1997, V99, P1534 HCAPLUS
- (3) Borden, P; J Biol Chem 1996, V271, P23577 HCAPLUS
- (4) Camper, L; J Biol Chem 1998, V273, P20383 HCAPLUS
- (5) Emery, P; Ann Rheum Dis 1995, V54, P944 MEDLINE
- (6) Fosang, A; FEBS Lett 1996, V380, P17 HCAPLUS
- (7) Geiler, T; Arthritis Rheum 1994, V37, P1664 MEDLINE
- (8) Hanemaaijer, R; J Biol Chem 1997, V272, P31504 HCAPLUS
- (9) Hembry, R; Ann Rheum Dis 1995, V54, P25 MEDLINE
- (10) Huhtala, P; J Cell Biol 1995, V129, P867 HCAPLUS
- (11) Ivaska, J; Cell Mol Life Sci 2000, V57, P16 HCAPLUS
- (12) Knauper, V; J Biol Chem 1996, V271, P1544 HCAPLUS
- (13) Knauper, V; J Biol Chem 1996, V271, P17124 MEDLINE
- (14) Knauper, V; J Biol Chem 1997, V272, P7608 HCAPLUS
- (15) Konttinen, Y; Ann Rheum Dis 1999, V58, P691 HCAPLUS
- (16) Konttinen, Y; Matrix Biol 1998, V17, P585 HCAPLUS
- (17) Konttinen, Y; Matrix Biol 1999, V18, P401 HCAPLUS
- (18) Kriegsmann, J; Lab Invest 1994, V71, P911 HCAPLUS
- (19) Langholz, O; J Cell Biol 1995, V131, P1903 HCAPLUS
- (20) Lehnert, K; Genomics 1999, V60, P179 HCAPLUS

- (21) Lemaire, R; Br J Rheumatol 1997, V36, P735 HCAPLUS
- (22) Lindy, O; Arthritis Rheum 1997, V40, P1391 HCAPLUS
- (23) MacNaul, K; J Biol Chem 1990, V265, P17238 HCAPLUS
- (24) McCachren, S; Arthritis Rheum 1991, V34, P1085 MEDLINE
- (25) Mitchell, P; J Clin Invest 1996, V97, P761 HCAPLUS
- (26) Moore, B; Biochim Biophys Acta 2000, V502, P307
- (27) Muller-Ladner, U; Am J Pathol 1996, V149, P1607 MEDLINE
- (28) Muller-Ladner, U; Curr Opin Rheumatol 2000, V12, P186 HCAPLUS
- (29) Nakagawa, K; Arthritis Rheum 1997, V40, P627 MEDLINE
- (30) Neidhart, M; Arthritis Rheum 2000, V43, P2634 HCAPLUS
- (31) Nonaka, T; J Rheumatol 2000, V27, P997 HCAPLUS
- (32) Pap, T; Arthritis Rheum 2000, V43, P1226 HCAPLUS
- (33) Pendas, A; Genomics 1997, V40, P222 HCAPLUS
- (34) Ravanti, L; J Biol Chem 1999, V274, P2446 HCAPLUS
- (35) Riikonen, T; J Biol Chem 1995, V270, P13548 HCAPLUS
- (36) Sarkissian, M; J Immunol 1999, V162, P1772 HCAPLUS
- (37) Schulze-Westhoff, C; Arthritis Rheum 1999, V42, P1517
- (38) Stahle-Backdahl, M; Lab Invest 1997, V76, P717 MEDLINE
- (39) Strongin, A; J Biol Chem 1995, V270, P5331 HCAPLUS
- (40) Tardif, G; Biochem J 1997, V323(Part 1), P13
- (41) Tetlow, L; Br J Rheumatol 1998, V37, P64 HCAPLUS
- (42) Tetlow, L; Rheumatol Int 1993, V13, P53 HCAPLUS
- (43) Tselepis, V; J Biol Chem 1997, V272, P21341 HCAPLUS
- (44) Vaalamo, M; J Invest Dermatol 1997, V109, P96 MEDLINE
- (45) Van den Berg, W; Rheumatol Eur 1995, V24(Suppl), P161
- (46) Van der Laan, W; Arthritis Rheum 2000, V43, P1710 HCAPLUS
- (47) Weidner, K; J Cell Biol 1993, V121, P145 HCAPLUS
- (48) Wernicke, D; J Rheumatol 1996, V23, P590 HCAPLUS
- (49) Will, H; J Biol Chem 1996, V271, P17119 HCAPLUS
- (50) Wolfe, G; Arthritis Rheum 1993, V36, P1540 HCAPLUS
- (51) Yamanaka, H; Lab Invest 2000, V80, P677 HCAPLUS
- (52) Zeller, Y; J Biol Chem 1998, V273, P6786 HCAPLUS

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AN 2002:27460 HCAPLUS

DN 137:104615

TI Anabolic and catabolic gene expression pattern analysis in normal versus **osteoarthritic cartilage** using complementary DNA-array technology

AU Aigner, Thomas; Zien, Alexander; Gehrsitz, Angelika; Gebhard, Pia
Margarethe; McKenna, Louise

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SO Arthritis & Rheumatism (2001), 44(12), 2777-2789

CODEN: ARHEAW; ISSN: 0004-3591

PB Wiley-Liss, Inc.

DT Journal

LA English

CC 3-4 (Biochemical Genetics)

Section cross-reference(s): 14

AB To understand changes in gene expression levels that occur during **osteoarthritic (OA) cartilage** degeneration, using complementary DNA (cDNA)-array technol. Nine normal, 6 early degenerated, and 6 late-stage OA **cartilage** samples of human knee **joints** were analyzed using the Human Cancer 1.2 cDNA array and TaqMan anal. In addn. to a large variability of expression levels between different patients, significant expression patterns were **detectable** for many genes. **Cartilage** types II and VI collagen were strongly expressed in late-stage specimens, reflecting the high matrix-remodeling activity of advanced OA **cartilage**. The increase in fibronectin expression in early degeneration suggests that fibronectin is a crucial regulator of matrix turnover activity of chondrocytes during early disease development. Of the matrix **metalloproteinases (MMPs)**, **MMP-3** appeared to

be strongly expressed in normal and early degenerative **cartilage** and down-regulated in the late stages of disease. This indicates that other degradn. pathways might be more important in late stages of **cartilage** degeneration, involving other enzymes, such as **MMP-2** and **MMP-11**, both of which were up-regulated in late-stage disease. **MMP-11** was up-regulated in OA chondrocytes and, interestingly, also in the early-stage samples. Neither **MMP-1** nor **MMP-8** was **detectable**, and **MMP-13** and **MMP-2** were significantly **detectable** only in late-stage specimens, suggesting that early stages are characterized more by degradn. of other matrix components, such as aggrecan and other noncollagenous mols., than by degradn. of type II collagen fibers. This investigation allowed us to identify gene expression profiles of the disease process and to get new insights into disease mechanisms, for example, to develop a picture of matrix proteinases that are differentially involved in different phases of the disease process.

- ST human **osteoarthritis cartilage** degeneration gene expression; cDNA microarray **detection osteoarthritic cartilage** gene expression
- IT **Chondrocyte**
DNA microarray technology
Human
 Osteoarthritis
 (anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT **Cartilage**
 (**degeneration**; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT Aggrecans
Collagens, biological studies
Fibronectins
 Osteonectin
Proteoglycans, biological studies
Tenascins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (expression of; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT **Joint, anatomical**
 (knee; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (type II, Col2A1, expression of; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (type III, Col2A1, expression of; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT 79955-99-0, Matrix **metalloproteinase-3** 145267-01-2, Matrix **metalloproteinase-11** 146480-35-5, Matrix **metalloproteinase-2** 175449-82-8, **Matrix metalloproteinase-13**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)

IT 9001-06-3, Chitinase

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(expression of; anabolic and catabolic gene expression pattern anal. in
normal vs. **osteoarthritic cartilage** using
complementary DNA-array technol.)

RE.CNT 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Aigner, T; Ann Rheum Dis 1997, V56, P287 MEDLINE
- (2) Aigner, T; Arthritis Rheum 1997, V40, P562 HCAPLUS
- (3) Aigner, T; Arthritis Rheum 2001, V44, P1304 MEDLINE
- (4) Aigner, T; J Clin Invest 1993, V91, P829 HCAPLUS
- (5) Aigner, T; Virchows Arch B Cell Pathol Incl Mol Pathol 1992, V62, P337 MEDLINE
- (6) Aikawa, T; J Bone Miner Res 1996, V11, P544 HCAPLUS
- (7) Anderson, H; J Histochem Cytochem 2000, V48, P1493 HCAPLUS
- (8) Bailon-Plaza, A; Bone 1999, V24, P211 HCAPLUS
- (9) Bank, R; Arthritis Rheum 2000, V43, P2202 HCAPLUS
- (10) Bennett, V; J Biol Chem 1987, V262, P14806 HCAPLUS
- (11) Billinghamurst, R; J Clin Invest 1997, V99, P1534 HCAPLUS
- (12) Boot, R; J Biol Chem 1995, V270, P26252 HCAPLUS
- (13) Brown, R; J Rheumatol 1990, V17, P65 HCAPLUS
- (14) Burton-Wurster, N; Biochim Biophys Acta 1984, V800, P52
- (15) Cawston, T; Ann N Y Acad Sci 1999, V878, P120 HCAPLUS
- (16) Chubinskaya, S; Lab Invest 1999, V79, P1669 HCAPLUS
- (17) Cole, A; Acta Orthop Scand 1995, V66, P98
- (18) Cs-Szabo, G; Arthritis Rheum 1995, V38, P660 MEDLINE
- (19) Cs-Szabo, G; Arthritis Rheum 1997, V40, P1037 HCAPLUS
- (20) Dawa, C; Science 1971, V174, P394
- (21) Dean, D; J Clin Invest 1989, V84, P678 HCAPLUS
- (22) Eisen, M; Proc Natl Acad Sci U S A 1998, V95, P14863 HCAPLUS
- (23) Flechtenmacher, J; Arthritis Rheum 1996, V39, P1896 HCAPLUS
- (24) Garnerero, P; Arthritis Rheum 2000, V43, P953 HCAPLUS
- (25) Gehrsitz, A; J Orthop Res 2001, V19, P478 HCAPLUS
- (26) Girkontaite, I; Matrix Biol 1996, V15, P231 HCAPLUS
- (27) Hadjiargyrou, M; J Bone Miner Res 2000, V15, P1014 HCAPLUS
- (28) Hakala, B; J Biol Chem 1993, V34, P25803
- (29) Hambach, L; Arthritis Rheum 1998, V41, P986 HCAPLUS
- (30) Hasty, K; J Biol Chem 1990, V265, P11421 HCAPLUS
- (31) Hodgson, R; Articular cartilage and osteoarthritis 1992, P629
- (32) Homandberg, G; Front Biosci 1999, V4, PD713 MEDLINE
- (33) Homandberg, G; J Orthop Res 1998, V16, P237 HCAPLUS
- (34) Homandberg, G; Osteoarthritis Cartilage 1998, V6, P231 MEDLINE
- (35) Huch, K; Arthritis Rheum 1997, V40, P2157 HCAPLUS
- (36) Ishiguro, N; Arthritis Rheum 1999, V42, P129 HCAPLUS
- (37) Lockhart, D; Nature 2000, V405, P827 HCAPLUS
- (38) Maquoi, E; Placenta 1997, V18, P277 HCAPLUS
- (39) Maroudas, A; Adult articular cartilage 1980, P215
- (40) McKenna, L; Anal Biochem 2000, V286, P80 HCAPLUS
- (41) Metsaranta, M; Calcif Tissue Int 1989, V45, P146 HCAPLUS
- (42) Mitchell, P; J Clin Invest 1996, V97, P761 HCAPLUS
- (43) Nakamura, S; Arthritis Rheum 1996, V39, P539 HCAPLUS
- (44) Nguyen, Q; J Clin Invest 1992, V89, P1189 HCAPLUS
- (45) Nimni, M; Science 1973, V181, P751 HCAPLUS
- (46) Pelletier, J; Arthritis Rheum 1990, V33, P1466 HCAPLUS
- (47) Poole, A; J Orthop Res 1996, V14, P681 HCAPLUS
- (48) Poole, C; J Cell Sci 1992, V103, P1101 HCAPLUS
- (49) Pullig, O; Matrix Biol 2000, V19, P245 HCAPLUS
- (50) Repo, R; J Bone Joint Surg Br 1971, V53, P541 HCAPLUS
- (51) Salter, D; Br J Rheumatol 1993, V32, P780 MEDLINE
- (52) Shlopov, B; Arthritis Rheum 1997, V40, P2065 HCAPLUS
- (53) Wolf, C; J Invest Dermatol 1992, V99, P870 MEDLINE
- (54) Wong, M; Dev Biol 1997, V192, P492 HCAPLUS
- (55) Yoshihara, Y; Ann Rheum Dis 2000, V59, P455 HCAPLUS

- (56) Young, R; Cell 2000, V102, P9 HCAPLUS
 (57) Zien, A; Bioinformatics 2001, V17(Suppl 1), PS323

L98 ANSWER 6 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:989 HCAPLUS

DN 136:384261

TI Production of cytokines, vascular endothelial growth factor, matrix **metalloproteinases**, and tissue inhibitor of **metalloproteinases 1** by tenosynovium demonstrates its potential for tendon destruction in **rheumatoid arthritis**
 AU Jain, Abhilash; Nanchahal, Jagdeep; Troeberg, Linda; Green, Patricia; Brennan, Fionula

CS Imperial College School of Medicine, London, W6 8H, UK

SO Arthritis & Rheumatism (2001), 44(8), 1754-1760

CODEN: ARHEAW; ISSN: 0004-3591

PB Wiley-Liss, Inc.

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 15

AB To investigate the role of proinflammatory cytokines, vascular endothelial growth factor (VEGF), matrix **metalloproteinases (MMPs)**, and tissue inhibitor of **metalloproteinases 1 (TIMP-1)** in the destruction of tendons by tenosynovium in **rheumatoid arthritis (RA)**. **Synovial** specimens were obtained from encapsulating tenosynovium (n = 17), invasive tenosynovium (n = 13), and wrist joints (n = 17) in 18 RA patients undergoing wrist extensor tenosynovectomy. **Synovial membrane** cells were dissocd. from **connective tissue** by enzyme digestion and cultured in vitro for 48 h, and harvested supernatants were assayed for the cytokines tumor necrosis factor .alpha. (TNF.alpha.) and interleukin-6 (IL-6), VEGF, **MMPs 1, 2, 3, and 13**, and TIMP-1 by ELISA. Gelatin zymog. was performed to demonstrate enzyme activity. Statistical anal. was performed using Student's paired 2-tailed t-tests for parametric data and the Wilcoxon signed rank test for nonparametric data. **MMP-1** and **MMP-13** levels were .apprx.2.5-fold higher in invasive tenosynovium compared with encapsulating tenosynovium. Levels of **MMP-2** were .apprx.1.5-fold higher in invasive tenosynovium compared with both encapsulating tenosynovium and wrist **joint synovium**. **MMP-13** (P = 0.009) and IL-6 (P = 0.03) levels were significantly lower in encapsulating tenosynovium compared with wrist **joint synovium**. Levels of VEGF, TIMP-1, TNF.alpha., and **MMP-3** were similar in all **synovial** sample groups. Zymog. demonstrated enzyme activity in all **synovium** samples from all 9 patients assessed. Tenosynovium produces proinflammatory cytokines and proteolytic enzymes that are important in the tissue degrdn. seen in RA. Increased prodn. of the enzymes **MMP-1, MMP-2, and MMP-13** by invasive tenosynovium suggests a possible explanation for the worse **prognosis** and increased rupture rate assocd. with invasive tenosynovitis in RA. Prodn. of VEGF by tenosynovium suggests that angiogenesis may have a role in tenosynovial proliferation and invasion of tendons.

ST human tenosynovitis **rheumatoid arthritis** cytokine
 matrix **metalloproteinase TIMP1** VEGF

IT Human
 Rheumatoid arthritis
 Synovial membrane
 Tendon
 (cytokines, VEGF, **MMPs**, and TIMP-1 prodn. by tenosynovium demonstrated its potential for tendon destruction in **rheumatoid arthritis**)

IT Interleukin 6

Tumor necrosis factors

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(cytokines, VEGF, **MMPs**, and TIMP-1 prodn. by tenosynovium
demonstrated its potential for tendon destruction in **rheumatoid
arthritis**)

IT Cytokines

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(inflammatory; cytokines, VEGF, **MMPs**, and TIMP-1 prodn. by
tenosynovium demonstrated its potential for tendon destruction in
rheumatoid arthritis)

IT Rheumatic diseases

Synovial membrane

(**rheumatoid synovitis**, tenosynovitis; cytokines,
VEGF, **MMPs**, and TIMP-1 prodn. by tenosynovium demonstrated
its potential for tendon destruction in **rheumatoid
arthritis**)

IT 9001-12-1, Matrix **metalloproteinase 1** 79955-99-0, Matrix
metalloproteinase 3 127464-60-2, Vascular endothelial growth
factor 140208-24-8, TIMP-1 **146480-35-5**, Matrix
metalloproteinase 2 175449-82-8,
Matrix metalloproteinase 13

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(cytokines, VEGF, **MMPs**, and TIMP-1 prodn. by tenosynovium
demonstrated its potential for tendon destruction in **rheumatoid
arthritis**)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Aimes, R; J Biol Chem 1995, V270, P5872 HCAPLUS
- (2) Arnett, F; Arthritis Rheum 1988, V31, P315 MEDLINE
- (3) Brennan, F; Br J Rheumatol 1997, V36, P643 HCAPLUS
- (4) Brennan, F; Clin Exp Immunol 1994, V97, P1 HCAPLUS
- (5) Butler, D; Eur Cytokine Netw 1994, V5, P441 HCAPLUS
- (6) Dalton, S; Ann Rheum Dis 1995, V54, P571 HCAPLUS
- (7) Elliott, M; Lancet 1994, V344, P1105 MEDLINE
- (8) Engleberts, I; Lymphokine Cytokine Res 1991, V10, P60
- (9) Ertel, A; Hand Clin 1989, V5, P177 MEDLINE
- (10) Ertel, A; J Hand Surg [Am] 1988, V13, P860 MEDLINE
- (11) Ferlic, D; Hand Clin 1996, V12, P561 MEDLINE
- (12) Houssiau, F; Arthritis Rheum 1988, V31, P784 MEDLINE
- (13) Koch, A; J Immunol 1994, V152, P4149 HCAPLUS
- (14) Leslie, B; Hand Clin 1989, V5, P191 MEDLINE
- (15) Morodomi, T; Biochem J 1992, V285, P603 HCAPLUS
- (16) Neurath, M; Scand J Plast Reconstr Surg Hand Surg 1993, V27, P59 MEDLINE
- (17) Vincenti, M; Arthritis Rheum 1994, V37, P1115 MEDLINE
- (18) Williamson, S; Hand Clin 1995, V11, P449 MEDLINE

L98 ANSWER 7 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:828415 HCAPLUS

DN 137:89412

TI Detection of variations in the DNA methylation profile of genes in the
determining the risk of disease

IN Berlin, Kurt; Piepenbrock, Christian; Olek, Alexander

PA Epigenomics A.-G., Germany

SO PCT Int. Appl., 636 pp.

CODEN: PIXXD2

DT Patent

LA German

IC C12Q001-68

CC 3-1 (Biochemical Genetics)

Section cross-reference(s): 1, 9, 14

FAN.CNT 68

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI WO 2001077373 A2 20011018 WO 2001-XA1486 20010406
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, CF, CG, CI, CM, GA, GW, ML, MR, NE, SN, TD, TG
 DE 10019058 A1 20011220 DE 2000-10019058 20000406
 WO 2001077373 A2 20011018 WO 2001-DE1486 20010406
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 PRAI DE 2000-10019058 A 20000406
 WO 2001-DE1486 W 20010406
 AB The invention relates to an oligonucleotide kit as probe for the detection of relevant variations in the DNA methylation of a target group of genes. The invention further relates to the use of the same for detg. the gene variant with regard to DNA methylation, a medical device, using an oligonucleotide kit, a method for detg. the methylation state of an individual and a method for the establishment of a model for establishing the probability of onset of a disease state in an individual. Such diseases may be: undesired pharmaceutical side-effects; cancerous diseases; CNS dysfunctions, injuries or diseases; aggressive symptoms or relational disturbances; clin., psychol. and social consequences of brain injury; psychotic disorders and personality disorders; dementia and/or assocd. syndromes; cardiovascular disease, dysfunction and damage; dysfunction, damage or disease of the gastrointestinal tract; dysfunction, damage or disease of the respiratory system; injury, inflammation, infection, immunity and/or anastasis; dysfunction, damage or disease of the body as an abnormal development process; dysfunction, damage or disease of the skin, muscle, connective tissue or bones; endocrine and metabolic dysfunction, damage or disease; headaches or sexual dysfunction. This abstr. record is one of several records for this document necessitated by the large no. of index entries required to fully index the document and publication system constraints.
 ST DNA methylation assay disease susceptibility detn
 IT Bone morphogenetic proteins
 Synaptobrevins
 Syntaxins
 Uncoupling protein
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
 IT Gene, animal
 RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (1PC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
 IT Bone morphogenetic proteins
 Presenilins
 Synaptobrevins

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins
Cyclin dependent kinase inhibitors
P-glycoproteins
Tropomyosins
Uncoupling protein
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins
Laminins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(6, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(95,000-mol.-wt., postsynaptic d., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chromogranins
Cyclins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(A-I, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(A-II, DNA methylation profiles in gene for and disease susceptibility;

- detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(A2M, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(AAEMX1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ABC (ATP-binding cassette) transporters, ABCC7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ABC7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ABCR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ABO, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACAA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACACA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACADL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACADM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACADS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACAT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACTN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACTN3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACVR2B, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ACVRL1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ADCX, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ADD1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ADD2 DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ADH3, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(ADHR, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ADTB3A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AGA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AGL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AGT, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AIF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AIM1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AIRE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ALAD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ALDH1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ALDH10, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ALDH2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ALDOA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ALDOB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ALDOC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ANGPT1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ANGPT2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ANX1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ANX4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(AP-2 (activator protein 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APBB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (APC, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APLP, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOAI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOC1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOC3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APOH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APP, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(APT1LG1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AR, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AREG, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ARG1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ARNT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ARSA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ARSB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ARSD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (ARSE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ARSF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ASH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ASL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ASPA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ASS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ASTN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AT3, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ATDC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ATM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ATOH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ATP2A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ATP7B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ATRX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AVP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(AZF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Ace, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Apaf-1 (apoptotic protease activating factor-1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins
Cyclins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(B, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(B-lym, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(B-raf, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(B23, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(B2M, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(B3GALT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BAPX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BARD1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BAX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCAT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCAT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCL-10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCL-4, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCL-5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCL-6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCL-7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCL-8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCL-9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCL2A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chimeric gene
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BCR-ABL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BDNF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BDNFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BLM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BMP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BMP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BMP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BMP4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BMP5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BMP6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BMP7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BMP8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(BMP8, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BPGM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BRCA1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BRCA2, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BRCD1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BRCD2, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BTK, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(BWR1A, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(Bax, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Bradykinin receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(B1, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Bradykinin receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(B2, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Cyclins
High-mobility group proteins
Troponins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(C, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Apolipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)

- (C-I, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(C-II, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(C-III, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C1R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C1S, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C4A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C4B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C8B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(C9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CACT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CALB2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CALB3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CALBI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CALCR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CALM1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CAMK2A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(CANX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CAPN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CASP9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CAV3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CBF (core-binding factor), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CBFA1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CBFA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CBFB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CBP (CREB-binding protein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CBS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CCNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (CCNB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CCNC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CCND1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CCNE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CCR2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CCR3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CCR5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CD1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CD10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CD4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT CD antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CD42a, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDH3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDK10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDK3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDK4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDK5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDK6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CDK7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (CDK8, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDK9, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDKN1A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDKN1B, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDKN1C, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDKN23, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CDKN2A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CHAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CHGA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CHH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CHM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CHRH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CHRNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CHYI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CIQA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CLCN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CLN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CLN3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CLN4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CLN5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CLN6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (CLQB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CLQG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CLU, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CNGA3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CNGAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CNR1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CNTF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CNTFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CNTN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COCH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL10A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL11A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL11A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL14A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL17A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL1A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL1A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL2A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL3A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL4A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL4A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (COL4A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL4A4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL4A5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL4A6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL5A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL5A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL6A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL6A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL6A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL7A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL9A2, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COL9A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COLQ, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(COLR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CRAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CRH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CRX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CRY1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CRY2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CSBP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CSBP1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CSBP2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CSE, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CSH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CST3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CSTB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CSX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CTH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CTNNB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CTNS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CTSG, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CTSK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CUBN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CXCR1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CXCR1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CXCR2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CXCR2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CXCR4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(CXCR4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP11A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP11B1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP11B2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP17, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP19, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP1A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP1A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP1B1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP21, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP24, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP27, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2A13, DNA methylation profiles and disease susceptibility;

detection of variations in DNA methylation profile of genes in detg.
risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2A6V2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2A7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2B6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2C18, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2C19, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2C8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2C9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2D6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2E1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2F1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP2J2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP3A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP3A4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP3A5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP3A7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP4A11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP4B1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP4F2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP4F3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP51, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP5A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP7A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(CYP8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins
Cyclins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(D, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DAD1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Steroid receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DAX-1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DAX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DBH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DBH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DBT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DCC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DDHI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DECR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DES, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DHAPAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DHCR7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DIAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DIAPH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DIAPH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DKC1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DLD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DM, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DM2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DMBT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DMD, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DMPK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Enzymes, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DNA helicases, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Myelin basic protein
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT ACTH receptors
Activin receptors
Amyloid precursor proteins
Androgen receptors
CD1 (antigen)
CD4 (antigen)
Calcitonin gene-related peptide receptors
Calcitonin receptors
Calmodulins
Calnexin
Calretinin
Cannabinoid receptors
Carcinoembryonic antigen
Chloride channel
Ciliary neurotrophic factor
Clathrin
Clusterin

Corticotropin releasing factor receptors
Desmins
Dynamin
Dystrophin
Elastins
Endoglins
Epidermal growth factor receptors
Fas antigen
Fas ligand
Fibrillins
Fibrinogens
Fibronectins
Galanin receptors
Glycine receptors
Gonadotropin-releasing hormone receptor
Haptoglobin
Hemoglobins
Heregulins
Inositol 1,4,5-trisphosphate receptors
Iron-sulfur proteins
Laminin receptors
Leptin receptors
Leukemia inhibitory factor
Leukemia inhibitory factor receptors
Lymphotoxin
Macrophage inflammatory protein 2
Melatonin receptors
Mineralocorticoid receptors
Monocyte chemoattractant protein-1
Myelin P0 protein
Myoglobins
Myosins
Nebulin (protein)
Nerve growth factor receptors
Neurofibromin
Neurokinins
Neurotensin receptors
Nicotinic receptors
Osteonectin
Osteopontin
Parathyroid hormone receptors
Parvalbumins
Platelet-activating factor receptors
Platelet-derived growth factor receptors
Platelet-derived growth factors
Potassium channel
Presenilins
Prion proteins
Proliferating cell nuclear antigen
Radixin
Ras proteins
Ryanodine receptors
Selectins
Stem cell factor
Synaptophysin
TCR .alpha..beta. (receptor)
Talin
Tau factor
Tenascins
Thrombin receptors
Thrombomodulin
Thrombospondins
Thyrotropin-releasing hormone receptors

Tumor necrosis factor receptors
Tumor necrosis factors
Urokinase-type plasminogen activator receptors
VIP receptors
Vasopressin receptors
Vimentins
Vinculin

Vitamin D receptors

c-Kit (protein)

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(DNA-binding, zinc finger-contg., 3, DNA methylation profiles in gene
for and disease susceptibility; detection of variations in DNA
methylation profile of genes in detg. risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(DNA-binding, zinc finger-contg., HRX, DNA methylation profiles in gene
for and disease susceptibility; detection of variations in DNA
methylation profile of genes in detg. risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(DNA-binding, zinc finger-contg., ZIC2, DNA methylation profiles in
gene for and disease susceptibility; detection of variations in DNA
methylation profile of genes in detg. risk of disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DNM1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)

IT Gene, animal

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(DNM1, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)

IT Cytokine receptors

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(DR4 (death receptor 4), DNA methylation profiles in gene for and
disease susceptibility; detection of variations in DNA methylation
profile of genes in detg. risk of disease)

IT Cytokine receptors

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(DR5 (death receptor 5), DNA methylation profiles in gene for and
disease susceptibility; detection of variations in DNA methylation
profile of genes in detg. risk of disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DRPLA, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)

IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(DYSF, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DYT1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DYT3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DYT6, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(DYT7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Ddc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-group substances
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Duffy, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Calbindins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(D28k, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Calbindins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(D9k, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins
Cyclins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(E, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cadherins
Selectins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

- (Biological study); USES (Uses)
(E-, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(EB1 (Epstein-Barr virus 1), DNA methylation profiles in gene for and
disease susceptibility; detection of variations in DNA methylation
profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EBAF, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ECE, DNA methylation profiles in and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(ED1, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EDN1, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EDN2, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EDN3, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EDNRA, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EDNRB, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EFMR, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EGF, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EIF4E, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(EKLF (erythroid Kruppel-like factor), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EKLF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ELK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ELK2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ELN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(EMD, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(EMX2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ENG, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EPB41, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EPB42, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EPB72, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EPHA, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EPHB, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(EPM2A, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ERB, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ERBAL2, methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ERCC5, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ERG, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(ETFA, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.)

- risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ETFB, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ETFDH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ETM1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ETM2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EWSR1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EXT1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(EXT2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(En-1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Evi-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(F1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(F11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(F12, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(F13, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(F2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(F2R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(F3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(F5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(FABP (fatty acid-binding protein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FABP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FANCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FANCC, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg.

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FANCD, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FBN1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FBN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FCGR2A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FCGR3A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FCGRLA, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FCMD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FECH, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGD1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGF1, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGF3, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGFR1, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGFR2, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGFR3, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FGG, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FKHR, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FLII, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FN1, DNA methylation profiles in and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FRAXA, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FRAXE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FRAXF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FUCAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FUT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FUT22, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FVT1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(FY, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(G/T mismatch binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Immunoglobulins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(G2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GAA, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

- (Biological study); USES (Uses)
(GAD1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GAL, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GALC, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GALE, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GALNRL, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GALNS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GAS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GAX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GBEI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GBX2, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GCDH, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- disease)
IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GDCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GDF5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GDI (GDP dissocn. inhibitor), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GDNF, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurotrophic factor receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GDNF, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GFBI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GGTAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GIF, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GJB2, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GJB3, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GK, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GLA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GLCLC, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GLDC, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GLI1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GLI2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GLI3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GLRA2, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GLS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GLUD1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GLYS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GLYS2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GLYT, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GM2 ganglioside activator protein GM2A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GM2A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GNPTA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GNRHR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GNS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GP IX, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GP1BB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GP1BG, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GP5, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GP9, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GPC3, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GPI, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GPIBA, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GPIBB, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Glycoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(GPIb, platelet, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GPLBG, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GRB2, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GRP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GSC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GSH, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(GSM1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(GUCA1A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT G proteins (guanine nucleotide-binding proteins)
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Gq, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(H, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HADHA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HADHB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HAGH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)
IT Gene, animal
Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HBA1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HBB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HBD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HBG1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HBG2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HBGG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HCF2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HCNP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HDLDT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HEXA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HEXB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HFE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HFI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HGD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HGL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HIF-1 (hypoxia-inducible factor 1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HIF-2 (hypoxia-inducible factor 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HLADPBL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HLCS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HLXB9, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT High-mobility group proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HMG-I(Y), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HMGIC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HMGIIY, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HOX11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HOXA13, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPAI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPE1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPE2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPE3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPE4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HPS, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-coagulation factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HRG (histidine-rich glycoprotein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HRG, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HSD11B2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HSD17B1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HSD17B3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HSD17B4, DNA methylation profiles and disease susceptibility;

- detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HSD3B2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Heat-shock proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HSPA2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Heat-shock proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(HSPAL, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HSTF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HTN3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HTS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HVBS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(HVBS6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
Receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Hel-N1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Annexins
Synaptotagmin
Troponins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (I, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IC7A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IC7B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cell adhesion molecules
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ICAM1, intercellular adhesion mol.), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ICAM1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ICCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IDS, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IDUA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IFNA1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IFNB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IFNG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IFNGR1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IFNGR2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IGER, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IGES, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IGF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IGF2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IGHG2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IGHM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IGJ, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (IGKC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IGKV, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IHH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Synaptotagmin
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(II, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IKBL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ILP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(INHA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(INHBA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(INHBB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(INHBC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IRF-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IRF4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(IRS-1 (insulin receptor substrate 1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IRS1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ISGF-2 (interferon-stimulated gene factor 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGA1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGA5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGA6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGA6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGA6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGB2, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGB3, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGB4, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGB5, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGB6, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITGB7, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITPR1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ITPR3, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(IVD, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Immunoglobulin receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(IgG type I, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Immunoglobulin receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(IgG type II, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of

- genes in detg. risk of disease)
- IT Immunoglobulin receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(IgG type III, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(JAK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(JAK2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(JAK3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Jagged 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-group substances
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(K (Kell), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(KAI 1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(KAL1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(KEL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(KHK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Selectins

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(L-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(L-myc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cell adhesion molecules
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(L1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Ribosomal proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(L17, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(L1CAM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LAMA3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LAMB3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LAMC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LAMM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LAMP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LAMR1, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LCAM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LCAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LCO, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LECAM1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LEF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LEP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LEPR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LHX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LHX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LHX3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LHX4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LIF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LIFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LMANI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LMNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LMO1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LMO2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LMO3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LMO4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(LPL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (LPP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LQT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LRP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LST-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LTA4S, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LTB4S, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LTBP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LTC4S, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(LYL1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Laminins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(M, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MADH3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MADH4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MADS box enhancer factor 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MADS box, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MAF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MANA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MANB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MAPK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MAPT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MAX protein interacting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MBL2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (MC2R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MC4R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MCC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MC1R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MDK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MDS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MEF2A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MEF2A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MEF2B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MEF2B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MEF2C, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MEF2D, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MEFV, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MEN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MGP (matrix .gamma.-carboxyglutamic acid-contg. protein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MGP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Histocompatibility antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MHC (major histocompatibility complex), class I, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Histocompatibility antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MHC (major histocompatibility complex), class II, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MHC2TA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MIDI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MIP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MLF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MLH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MLL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MLN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP12, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP13, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP14, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP15, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (MMP16, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP17, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP18, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP19, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMP9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MMPI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MPE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MPZ, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Calcium-binding proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MRP-8 (migration inhibitory factor-related protein 8), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MSH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MSH3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MSH6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MSX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MSX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MTHFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MTMI, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MTNRLA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MTNRLB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MTP (microsomal triglyceride-exchanging protein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MTP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MTR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MUC18, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(MUC18, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MUL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MUM1, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MUT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MXI1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MYO6, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MYO7A, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MYCN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MYF3, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(MYF4, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Myf-5 (myogenic factor 5), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Myf-5, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(N, snRNP, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cadherins

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(N-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cell adhesion molecules
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(N-CAM-120, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(N-ras, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NAGLU, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NAIP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(NAIP, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NAT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NAT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NB6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NCAM1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NCAM120, DNA methylation profiles and disease susceptibility;

detection of variations in DNA methylation profile of genes in detg.
risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NCAM2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cell adhesion molecules
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(NCAM2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NDN, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NDP, ethylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NDPKA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NDUFS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NDUFS4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NDUFV1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NEB, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NEC1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(NF-E1 (nuclear factor erythroid 1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurofilament proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(NF-H, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurofilament proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(NF-L, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NF2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NF68, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NFH, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NGF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NGFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NKNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NKNB, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NODAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NOS1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NOS2, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NOS3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NOTCH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NOTCH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NPHP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NPHP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NRL, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NSK2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NTRK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NTS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(NTSR1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Notch 3DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OAl, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OCRL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ON, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OPG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OPN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OTX1, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OTX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OX1R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OX2R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(OXCT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Oligophrenin 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cadherins
Selectins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(P-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAFAH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAFAH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PAFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAI1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAI2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PARS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAX3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAX6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PAX7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PCI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PCK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PDDR, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PDGF, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PDGFR, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PDHA, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Cell adhesion molecules
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(PECAM-1, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PECAM1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(PENK, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PEPD, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PFKFB1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PFKL, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PFKM, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PGDS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PGKI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PGKL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PGY3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PHB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PHEX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PHKA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PHYH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PIGA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PITPN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PITX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PITX3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PKA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PKD2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PKDL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PKHDL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PKP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PLF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PLG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PLRP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (PMCH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PML, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PMM2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PMP-22 (peripheral myelin protein, 22,000-mol.-wt.), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PMS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PMS2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(POMC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PPGB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PPOX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PPP1R3, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PPP2R1B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PPT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRKB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRKCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRKCG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PROC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (PRODH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PROP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRPH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PRPS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PRSS7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PSAP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PSD95, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PSEN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PSEN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTCH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTEN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(PTEN, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTGS2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTH, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTHLH, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTHR1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTHRP, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTPN12, DNA methylation profiles in and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PTS, DNA methylation profiles and disease susceptibility; detection of
variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PVALB, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PXMP3, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PXR1, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(PYCS, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(PYGL, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Prn-p gene, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(R-ras, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RAB3a, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RAG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoic acid receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RAR-.alpha., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoic acid receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RAR-.beta., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoic acid receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RAR-.gamma., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RARA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RARB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RB1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RDX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT DNA formation factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RF-C (replication factor C), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RFC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RFX5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RFXAP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RHAG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RHCE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RHD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RHOK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RIGUI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RLBP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RLN1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RLN2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RPL17, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RPP65, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RPP65, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RPS19, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RPX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RS, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RXRA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RXRB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RXRG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoid X receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RXR.alpha., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoid X receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RXR.beta., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoid X receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(RXR.gamma., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(RYR1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-group substances
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Rh(D), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-group substances
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Rh, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Rhesus blood group-assocd., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Rim, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Calcium-binding proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(S-100, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(S100A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)
IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(S100A4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Calcium-binding proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(S100A4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(S100A5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(S100A7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(S100A8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(S100A9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(S100P, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Ribosomal proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(S19, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(SAA (serum amyloid A), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(SAA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

- (Biological study); USES (Uses)
(SAP (serum amyloid P component), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SAP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SCA8, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SCF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SCP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(SCP2 (sterol carrier protein 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SDHL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SELE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SELL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SELP, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SEMA3, DNA methylation profiles disease susceptibility; detection of

- variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SEMA5, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SEMAE, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SEMAW, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Sialoglycoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(SGP-2 (sulfoglycoprotein 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SGSH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SH2D1A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SHH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SIX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SIX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SIX5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SLAM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lymphokines
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(SLAM, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(SLAM-assocd., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SMARCSI, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SMNI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SMOH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SMPD1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(SNAP-25 (synaptosome-assocd. protein, 25,000-mol.-wt.), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SNAP25, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SNCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (SNCA, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SNCB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SNRPN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SOD-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SOD3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SOX 11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SOX11, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SPG7, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SPTAI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SPTB, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SSAI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SSX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SSX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ST3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ST8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STAR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STAT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(STAT1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STAT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(STAT2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STAT3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (STAT3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STAT4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(STAT4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STAT5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(STAT5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STK11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STK2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(STS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SUOX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SV2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SVAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYB2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYND1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYND2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYND3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYND4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(SYT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (SyB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Troponins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(T, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TAL2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TAP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TAP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TAT, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TBG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(TCF-1 (T-cell factor 1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TCN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TCN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TCRA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TCRD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TECTA, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TEK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TEL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TFAP2B, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TFAP2C, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TGFA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TGFB2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TGFB2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (THBD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(THBSI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(THPO, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(THRB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(THRTA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TIMP-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TIMP-3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TIMP-4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TKCR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TKTL1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TLN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TNFA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TNFAR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TNFB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TNFBR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TNN13, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TNNT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TNXA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TP73, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TPA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (TPH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TPI1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TPM3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TPT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRAF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRAF2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRAF3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRAF4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRAF5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRAF6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cytokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(TRAIL, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Cytokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(TRAIL-R3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRC8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TRHR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TSC1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TSC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TSG101, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TSPY, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TTPA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(TULP1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use)

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Thy-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Antigens
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Thy-1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Tip-assocd., DNA methylation profiles of gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurotrophic factor receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(TrkA, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(UCP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(UCP3, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(UFD1L, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(UGT2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(UGTL, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(UMPK, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(UMPS, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(UOX, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(UPA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(UPAR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(UROS, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(USH2A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(V, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(VAMP8, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VDR, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VHL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VIM, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VIP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VIPR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VLDLR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VMAT1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VMAT2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VPP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VPP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(VVTI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Vitamin B12-binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(WASP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(WFS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(WHN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(WHSC1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(WRN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(WT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(WT4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(XPA, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(XPC, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(XPF, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(XRCC9, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Xdh, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

(Biological study); USES (Uses)
(Y, DNA methylation profiles in gene for and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(YY1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(YY1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ZIC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ZIC3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(abl1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(abl2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(acidic amino acid-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(acylcarnitine-carnitine-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(adducins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Behavior
(aggressive, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(akt1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(akt2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amyloid precursor binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(amyloid precursor-like, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(apoptosis-regulating, Apoptosis inducing factor, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(aspartate, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(astrotactins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Nervous system
(ataxia telangiectasia, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(atrophin 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ax1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(band 4.1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of

- genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(band 4.2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(band 7.2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(bcl-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(bcl-2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(bcl-3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurotrophic factor receptors
Neurotrophic factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(brain-derived, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Genetic element
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(breakpoint cluster region, detection of methylation in; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-Ha-ras, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-erbA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-erbB, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-erbB2, DNA methylation profiles and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-erbB3, DNA methylation profiles and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-erbB4, DNA methylation profiles and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-ets-1, DNA methylation profiles and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-ets-2, DNA methylation profiles and disease susceptibility;
detection of variations in DNA methylation profile of genes in detg.
risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-fes, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-fgr, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-jun, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-kit, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-mos, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-mpl, DNA methylation profiles and disease susceptibility; detection
of variations in DNA methylation profile of genes in detg. risk of
disease)

- disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-myb, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-myc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-ros, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-sis, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-ski, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-src, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(c-yes, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(calcium-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(carnitine-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caveolins, 3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(cdk2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Nervous system
(central, disease, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurotrophic factor receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ciliary, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(clk1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(cochins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(cofilins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(collagen, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(contactin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(copper-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(cot, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(crk, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(crkI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Ion channel
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(cyclic nucleotide-gated, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(cystinosin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Mental disorder
(dementia, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Human
Test kits
(detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone, disease
Headache
Infection
Inflammation
Muscle, disease
Neoplasm
Skin, disease
(detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Drugs
(detn. of risk of side effects; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Susceptibility (genetic)
(detn. of; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(dhh, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(diaphanous 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(diaphanous 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cardiovascular system
Connective tissue
Digestive tract
Endocrine system
Respiratory tract
(disease, detn. of genetic susceptibility to; detection of variations

- in DNA methylation profile of genes in detg. risk of disease)
- IT Behavior
Development, mammalian postnatal
Metabolism, animal
Sexual behavior
(disorder, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(doublecortins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dysfedins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dyskerins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Initiation factors (protein formation)
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(eIF-4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ect2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Flavoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(electron-transporting flavoproteins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(emerin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(emsl, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Probes (nucleic acid)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(for detection of uracil in DNA as indicator of methylation; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (fos, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(fps, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(frataxins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(gap junction-specific, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(gas-3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(gene EWS, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(gephyrins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurotrophic factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glial-derived, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glucose-6-phosphatase translocating, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glutamine-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glycine-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(gro1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(gro2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(guanylate cyclase activating, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT G proteins (guanine nucleotide-binding proteins)
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(gustducins, .alpha. subunit, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Immunoglobulins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(heavy chains, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteoglycans, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(heparitin sulfate-contg., glypican 3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(high-d., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(homeodomain-contg., Bagpipe, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(homeodomain-contg., cardiac, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(hsl, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (huntingtin, guanylate cyclase activating, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydrogen ion-transporting, vacuolar, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Brain, disease
(injury, detn. of genetic susceptibility to behavioral consequences of; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(int-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(int3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(int4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT CD antigens
Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(integrin .beta.5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT CD antigens
Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(integrin .beta.7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(interferon regulatory factor 4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(intermediate-d., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(intrinsic factor, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ipsa, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lamins, A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lamins, C, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(lck, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(low-d., 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(low-d., 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lymphokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lymphotoxin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(lyn, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cytokines
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(macrophage-activating factor, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(maf, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Agglutinins and Lectins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(mannose-binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(marenostriins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(mas1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(mcf2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(mdm-2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(mel, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Pituitary hormone receptors

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(melanocortin 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Pituitary hormone receptors

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(melanocortin 4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(membrane, limbic assocd., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(membrane, peroxisomal membrane protein 3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(menin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(met, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT DNA
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(methylation; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(microtubule-assocd., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(mitochondrial trifunctional, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(monoamine-transporting, synaptic vesicle, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(monoamine-transporting, vesicular, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Growth factors, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(myogenic, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(neurexins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Growth factors, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(neurite extension factors, 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Growth inhibitors, animal
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(neurite growth inhibitors, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nexins, 2, DNA methylation profiles in gene for and disease

- susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(niacin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cytokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(oncostatin M, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(orexin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ovc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cyclin dependent kinase inhibitors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(p16INK4A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cyclin dependent kinase inhibitors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(p21CIP1/WAF1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cyclin dependent kinase inhibitors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(p27KIP1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cyclin dependent kinase inhibitors
(p57KIP2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(p73, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(peripherins (neuronal intermediate filament), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Mental disorder
(personality disorder, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(phosphatidylinositol transfer protein, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(pim-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(plakophilins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polycystins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Phosphoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(pp56lck, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(pp60c-src, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prohibitins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prosaposins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-coagulation factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(protein S, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Mental disorder
(psychosis, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(pti-1 sea, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg.

- risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(pvt-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(r-myc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(raf, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ralb, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ras, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(rel, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(repressors, necdin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ret, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(retinal-binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(rxrfank, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

- (Biological study); USES (Uses)
(semaphorins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT G proteins (guanine nucleotide-binding proteins)
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(smg-25A (small-mol.-wt. guanine nucleotide-binding, 25,000-mol.-wt., A), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(sno, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Hedgehog protein
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sonic, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(synapsin IIa, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(synapsin IIb, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(synapsin Ia, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(synapsin Ib, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(synaptic vesicle protein 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(synaptogyrin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Syndecans
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(syndecan 2, DNA methylation profiles in gene for and disease

- susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Syndecans
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(syndecan 4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Syndecans
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(syndecans-1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(tall, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(tc21, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Globulins, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(thyroxine-binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(tim, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(timp-2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(tumor-assocd., translationally-controlled 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(twist, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Fibroblast growth factor receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(type 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Fibroblast growth factor receptors

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type 2, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Fibroblast growth factor receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type 3, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Prostanoid receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type EP2, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Endothelin receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type ETA, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Endothelin receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type ETB, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Activin receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type IIB, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type IV, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type IX, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type V, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type VI, DNA methylation profiles in gene for and disease
susceptibility; detection of variations in DNA methylation profile of
genes in detg. risk of disease)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
(Biological study); USES (Uses)
(type VII, DNA methylation profiles in gene for and disease

- susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(type X, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(type XI, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Collagens, biological studies
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(type XVII, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ubiquitin fusion degeneration 1-like, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(undulins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(v-Ki-ras2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(vav-trk, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(very-low-d., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Skin, disease
(xeroderma pigmentosum, DNA methylation profiles in genes for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(yuasa, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Opioid receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (.kappa.-opioid, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Interferons
Interleukin 8 receptors
Thyroid hormone receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Actinins
Spectrins
Transforming growth factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.-tectorin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.-tocopherol transferring, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.M, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Macroglobulins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.2-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.2-macroglobulin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

- (Biological study); USES (Uses)
(.alpha.4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.alpha.6, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta. chemokine receptor CCR2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta. chemokine receptor CCR3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta. chemokine receptor CCR5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Interferons
Interleukin 8 receptors
Thyroid hormone receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Spectrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.-adaptins, 3A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transforming growth factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.-induced, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transforming growth factor receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (.beta.-transforming growth factor type II, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.-transforming growth factor-binding, 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transforming growth factors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.2-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Microglobulins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.2-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.beta.6, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Interferons
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.gamma., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Interferon receptors
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(.gamma.-interferon, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT TCR .gamma..delta. (receptor)
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (.delta.-chain, T Cell receptor .delta. chain, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT 9024-52-6 9026-51-1
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT 9016-17-5
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (D, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT 9012-96-8, Cystathionase
 RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT 9000-90-2, .alpha.-Amylase 9000-94-6, Antithrombin III 9000-96-8, Arginase 9001-04-1, Pyruvate decarboxylase 9001-05-2, Catalase 9001-10-9, Pepsinogen 9001-12-1, Matrix metalloproteinase 8 9001-16-5, Cytochrome c oxidase 9001-18-7, Dihydrolipoamide dehydrogenase 9001-30-3, Blood-coagulation factor XII 9001-41-6, Phosphoglucose isomerase 9001-42-7, .alpha.-Glucosidase 9001-45-0, .beta.-Glucuronidase 9001-47-2, Glutaminase 9001-52-9, Fructose-1,6-diphosphatase 9001-67-6, Neuraminidase 9001-75-6, Pepsin 9001-77-8, Acid phosphatase 9001-80-3, Phosphofructokinase 9001-81-4, Phosphoglucomutase 9001-83-6, Phosphoglycerate kinase 9001-88-1, Phosphorylase kinase 9001-91-6, Plasminogen 9001-97-2, Glycogen branching enzyme 9002-02-2, Succinate dehydrogenase 9002-12-4, Urate oxidase 9002-64-6, Parathyroid hormone 9002-69-1D, Relaxin, isoforms 9002-76-0, Gastrin 9004-02-8, Lipoprotein lipase 9004-06-2, Matrix metalloproteinase 12 9007-43-6, Cytochrome c, biological studies 9012-25-3, Catechol-o-methyltransferase 9012-33-3, Hexosaminidase 9012-47-9, Amylo-1,6-glucosidase 9012-78-6, Choline acetyltransferase 9012-93-5, Ferrochelatase 9013-08-5, Phosphoenolpyruvate carboxykinase 9013-38-1, Dopamine .beta.-hydroxylase 9013-55-2, Blood-coagulation factor XI 9013-56-3, Factor XIII 9013-75-6, Histidase 9014-08-8, Enolase 9014-19-1, Pyruvate carboxylase 9014-36-2, Succinate thiokinase 9014-42-0, Thrombopoietin 9014-55-5, Tyrosine aminotransferase 9014-56-6, Glycogen synthase 9014-74-8, Enterokinase 9015-81-0, 17.beta. Hydroxysteroid dehydrogenase 9015-82-1, Angiotensin converting enzyme 9015-83-2, Phosphoribosyl pyrophosphate synthetase 9015-94-5, Renin, biological studies 9023-58-9, Arginosuccinate synthetase 9023-64-7, Glutamate cysteine ligase 9023-69-2, Asparagine synthetase 9023-70-5, Glutamine synthase 9023-78-3, Triosephosphate isomerase 9023-90-9, MethylmalonylCoA mutase 9023-93-2, Acetyl CoA carboxylase 9023-99-8, Cystathionine .beta. synthase 9024-58-2, Glutamate decarboxylase 9024-78-6, Kynureninase 9025-26-7, Cathepsin D 9025-32-5 9025-35-8, .alpha. Galactosidase A 9025-42-7, Mannosidase, .alpha. 9025-43-8, Mannosidase, .beta. 9025-62-1, Steroid sulfatase 9025-90-5, Hydroxyacyl glutathione hydrolase 9026-22-6, UDP-glucose pyrophosphorylase 9027-21-8, Carnosinase 9027-33-2, N-Acetyltransferase 9027-34-3 9027-43-4, 3-Oxoacid CoA transferase 9027-44-5, HMG-CoA synthase 9027-46-7, Thiolas 9027-56-9, N-Acetylglucosaminidase 9027-88-7, Short chain Acyl CoA dehydrogenase 9027-89-8, Galactocerebrosidase 9027-96-7, Citrate synthase 9028-16-4,

Xylitol dehydrogenase 9028-31-3, Aldose reductase 9028-86-8, Aldehyde
 dehydrogenase 9029-12-3, Glutamate dehydrogenase 9029-38-3, Sulfite
 oxidase 9029-49-6, Homogentisate 1,2 dioxygenase 9029-61-2, Kynurenine
 hydroxylase 9029-72-5, 4-Hydroxyphenylpyruvate dioxygenase 9029-73-6
 9029-90-7, Carnitine acetyltransferase 9029-97-4, Acetyl CoA
 acyltransferase 9030-08-4, UDP-glucuronosyltransferase 9030-21-1,
 Purine nucleoside phosphorylase 9030-42-6, Ornithine
 .delta.-aminotransferase 9030-50-6, Ketohexokinase 9030-66-4, Glycerol
 kinase 9030-83-5, HMG-CoA lyase 9031-02-1, .alpha.-Ketoglutarate
 dehydrogenase 9031-14-5, Lecithin cholesterol acyltransferase
 9031-37-2, Ceruloplasmin 9031-72-5, Alcohol dehydrogenase 9031-86-1,
 Aspartoacylase 9031-96-3, Peptidase A 9032-02-4 9032-15-9,
 .alpha.-Dextrinase 9032-25-1, NADH cytochrome b5 reductase 9032-88-6,
 Fumarase 9034-40-6, LHRH 9035-34-1, Cytochrome a 9035-58-9, Blood
 coagulation Factor III 9035-74-9, Glycogen phosphorylase 9035-75-0,
 Chymotrypsinogen 9036-22-0, Tyrosine hydroxylase 9036-23-1, Uridine
 monophosphate kinase 9036-37-7, .delta.-Aminolevulinate dehydratase
 9037-21-2, Tryptophan hydroxylase 9037-65-4, Fucosidase, .alpha.-L-
 9039-53-6, Urokinase 9041-46-7 9042-64-2, DOPA decarboxylase
 9044-85-3, 3.beta. Hydroxysteroid dehydrogenase 9047-22-7, Cathepsin B
 9050-70-8, Proline dehydrogenase 9054-54-0, Transacylase 9054-65-3,
 Branched chain aminotransferase 9054-75-5, Guanylyl cyclase 9054-84-6,
 Xanthine dehydrogenase 9054-89-1, Superoxide dismutase 9054-94-8,
 Galactosyltransferase, uridine diphosphogalactose-acetylglucosamine
 9055-02-1, Prekallikrein 9055-67-8, Poly(ADPribose) synthetase
 9056-26-2, Peptidase B 9059-22-7, Heme oxygenase 9061-61-4, Nerve
 growth factor 9067-69-0, Acetylgalactosaminyltransferase, [blood-group
 substance] .alpha. 9068-68-2, Arylsulfatase A 9068-75-1, Glucagon
 synthetase 9073-56-7, .alpha.-L-Iduronidase 9074-10-6, Biliverdin
 reductase 9075-24-5, Aspartylglucosaminidase 9079-67-8, NADH
 dehydrogenase 9080-21-1, 7-Dehydrocholesterol reductase 9082-57-9,
 Inosine triphosphatase 9082-72-8 11016-39-0, Properdin 11085-36-2,
 Human placental lactogen 12651-27-3, Transcobalamin 1 12651-28-4,
 Transcobalamin 2 24305-27-9, Thyrotropin releasing hormone 33507-63-0,
 Substance P 37184-63-7, Inositol monophosphatase 37211-69-1,
 2,3-Bisphosphoglycerate mutase 37213-56-2, Factor D 37221-79-7,
 Vasoactive intestinal polypeptide 37237-43-7, Galactosyltransferase,
 uridine diphosphogalactose-glycoprotein 37255-32-6, Dihydrodiol
 dehydrogenase 37255-38-2, GlutarylCoA dehydrogenase 37255-40-6,
 Glycine dehydrogenase 37257-19-5, Dihydroxyacetone phosphate
 acyltransferase 37270-64-7, AcylCoA thioesterase 37274-61-6,
 Isovaleryl CoA dehydrogenase 37277-69-3, Fucosyltransferase 3
 37288-40-7, .alpha.-Acetylglucosaminidase 37289-41-1, Sulfamidase
 37290-90-7, Methionine synthase 37340-55-9, Uroporphyrinogen III
 synthase 39346-44-6, Inter-.alpha.-trypsin inhibitor 39362-14-6,
 Prolactin releasing hormone 39379-15-2, Neurotensin 39401-02-0,
 Coumarin 7-hydroxylase 39419-81-3, Holocarboxylase synthetase
 50936-59-9, Iduronate 2 sulfatase 52906-92-0, Motilin 53230-14-1,
 Preprothrombin 53986-32-6, Protoporphyrinogen oxidase 54004-64-7,
 Rhodopsin kinase 55354-43-3, Arylsulfatase B 56626-18-7,
 Fucosyltransferase 56645-49-9, Cathepsin G 59299-00-2,
 N-Acetylgalactosamine-6-sulfate sulfatase 59536-73-1, Phosphomannomutase
 59536-74-2, Long chain Acyl CoA dehydrogenase 60320-99-2,
 N-Acetylglucosamine-6-sulfatase 60748-73-4, Cathepsin H 61512-21-8,
 Thymosin 62213-29-0, Enoyl CoA isomerase 62229-50-9, Epidermal growth
 factor 65802-85-9, Prostaglandin D synthase 66796-54-1,
 Proopiomelanocortin 67526-96-9, Galactosyltransferase, uridine
 diphosphogalactose-acetylglucosamine 3.beta.- 67763-96-6, Insulin like
 growth factor 1 67763-97-7, Insulin like growth factor 2 68651-94-5
 70356-40-0, DNA glycosylase 71822-25-8, 5,10-Methylenetetrahydrofolate
 reductase (NADPH) 72497-28-0, Cytochrome P 450 8 74506-38-0, Medium
 chain Acyl CoA dehydrogenase 74812-49-0, Parkin 74870-74-9, UMP
 synthetase 75922-89-3, Pyrroline-5-carboxylate synthetase 76901-00-3,

Platelet activating factor acetylhydrolase 78689-77-7,
 6-Phosphofructo-2-kinase 78849-38-4, Leukin 78990-62-2, Calpain
 79747-53-8, Protein tyrosine phosphatase 79955-99-0, Matrix
 metalloproteinase 3 80043-53-4, Gastrin releasing peptide 80295-33-6,
 Complement C1q 80295-34-7, Complement C1r 80295-35-8, Complement C1s
 80295-38-1, Complement C1 inhibitor 80295-40-5, Complement component C2
 80295-41-6, Complement component C3 80295-49-4, Complement C4A
 80295-50-7, Complement C4B 80295-53-0, Complement C5 80295-56-3,
 Complement C6 80295-57-4, Complement C7 80295-58-5, Complement C8
 80295-59-6, Complement C9 80295-65-4, Complement factor H 81604-65-1,
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 reductase 86551-03-3, Electron-transferring flavoprotein dehydrogenase
 88402-55-5, Prodynorphin 90597-47-0, Peptidylglycine .alpha.-amidating
 monooxygenase 90698-32-1, Leukotriene C4 synthase 91448-99-6, Cystatin
 C 92769-12-5, Proliferin 93443-35-7, Preproenkephalin 94716-09-3,
 Cathepsin K 95567-84-3, Dihydrolipoamide transacylase 96231-41-3,
 .beta.-Inhibin 97089-82-2, 6-Pyruvoyltetrahydropterin synthase
 97501-92-3, Chymase

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
 (Biological study); USES (Uses)

(DNA methylation profiles in gene for and disease susceptibility;
 detection of variations in DNA methylation profile of genes in detg.
 risk of disease)

IT 99194-04-4, Cystatin B 99676-46-7, Neuroendocrine convertase 1
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 110910-42-4, Cathepsin E 111694-13-4, Inositol polyphosphate
 1-phosphatase 114051-78-4, LCK tyrosine kinase 114101-80-3, ProMelanin
 concentrating hormone 114949-22-3, Activin 115966-66-0, Histatin 1
 115966-67-1, Histatin 3 117147-70-3, Amphiregulin 119418-04-1, Galanin
 120178-12-3, Telomerase 121797-22-6, Histatin 2 122191-40-6, Caspase 1
 122879-69-0, Endothelin 2 123626-67-5, Endothelin 1 124861-55-8
 125692-40-2, Endothelin 3 125978-95-2, Nitric oxide synthase
 134712-57-5, Oxygenase, steroid 27-mono- 138238-81-0, Endothelin
 converting enzyme 138359-29-2 139466-48-1, Protein C inhibitor
 139639-23-9, Plasminogen activator, Tissue-type 140158-49-2, Hippocampal
 cholinergic neurostimulating peptide 140208-23-7, Plasminogen activator
 inhibitor 1 140208-24-8, Tissue inhibitor of metalloproteinase 1
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 147014-97-9, Cyclin dependent kinase 4 148047-29-4, Gene TEK protein
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 dependent kinase 3 154531-34-7, Epidermal growth factor-like growth
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182372-15-2, Caspase 6 182762-08-9, Caspase 4 182938-13-2,
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 metalloproteinase 4 186270-49-5, Angiopoietin 1 188364-80-9, Matrix
 metalloproteinase 19 189088-85-5, Caspase 10 189258-14-8, Caspase 7
 192465-11-5, Caspase 5 193830-08-9, Growth/differentiation factor 5
 194368-66-6, Angiopoietin 2 202420-40-4, Gene STK11 protein kinase
 203810-08-6, Matrix metalloproteinase 17 205944-50-9, Osteoprotegerin
 207004-87-3, Methionine synthase reductase 213903-53-8, Cryptochrome 1
 216864-07-2, .alpha.-Synuclein 216864-08-3, .beta.-Synuclein
 216864-09-4, .gamma.-Synuclein 216974-70-8, Ephrin B2 receptor kinase
 227604-60-6, Proteinase, matrix metallo-, MT5-MMP 245359-74-4, Orexin
 248259-60-1, Ephrin A8 receptor kinase 252351-68-1, Leukotriene B4
 synthase 252351-86-3, Matrix metalloproteinase 6 252354-25-9, Gene
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 dependent kinase 6 329736-03-0, Cytochrome P 450 3A4 329764-85-4,
 Cytochrome P 450 1A1 329900-75-6, Prostaglandin endoperoxide synthase 2
 329978-01-0, Cytochrome P 450 2C9 330196-64-0, Cytochrome P 450 1A2
 330196-93-5, Cytochrome P 450 2E1 330197-29-0, Cyclin-dependent kinase 7
 330207-11-9, Cytochrome P 450 2B6 330207-13-1, Cytochrome P 450 2C8
 330207-52-8, Cytochrome P 450 4B1 330589-90-7, Cytochrome P 450 2C19
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 330824-80-1, Cytochrome P 450 CYP21 331823-27-9, Cytochrome P 450 2A1
 336193-98-7, Exostosin 1 336874-97-6, Cytochrome P 450 3A5
 338454-52-7, .gamma.-Secretase 338455-07-5, .alpha.-Secretase
 338969-62-3, Cytochrome P 450 2A3 344576-15-4, Cytochrome P 450 3A7
 350986-45-7, Cytochrome P 450 2C18 351496-11-2, Cytochrome P 450 4A11
 359643-03-1, Cytochrome P 450 2F1 359868-69-2, Cytochrome P 450 2J2
 360055-02-3, Myotubularin 360069-51-8, Cryptochrome 2 362479-32-1,
 Protein phosphatase 1 403652-37-9, CDK8 kinase 436097-19-7, Cytochrome
 P 450 2A7 440352-47-6, Cytochrome P 450 4F3 440354-11-0, P 450 7A
 440354-98-3, Cytochrome P 450 11A 440355-29-3, Cytochrome P 450 11B2
 440356-60-5, Cytochrome P 450 27B1 440356-80-9, Cytochrome P 450 51
 440363-51-9, P 450 2A13 440363-68-8, P 450 3A3 440363-88-2, P 450 5A1
 440365-05-9, Cytochrome P 450 17 440367-91-9, Cytochrome CYP19
 440368-52-5, Cytochrome CYP24

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
 (Biological study); USES (Uses)

(DNA methylation profiles in gene for and disease susceptibility;
 detection of variations in DNA methylation profile of genes in detg.
 risk of disease)

IT 37205-61-1, Proteinase inhibitor

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
 (Biological study); USES (Uses)

(I, DNA methylation profiles in gene for and disease susceptibility;
 detection of variations in DNA methylation profile of genes in detg.
 risk of disease)

IT 141467-21-2

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
 (Biological study); USES (Uses)

(II, DNA methylation profiles in gene for and disease susceptibility;
 detection of variations in DNA methylation profile of genes in detg.
 risk of disease)

IT 9031-54-3, Sphingomyelinase

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic
 use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(SEMA4, DNA methylation profiles disease susceptibility; detection of
 variations in DNA methylation profile of genes in detg. risk of
 disease)

L98 ANSWER 8 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:41655 HCAPLUS

DN 134:365095

- TI **Collagenases** in different categories of peri-implant vertical
bone loss
- AU Ma, J.; Kitti, U.; Teronen, O.; Sorsa, T.; Husa, V.; Laine, P.; Ronka, H.;
Salo, T.; Lindqvist, C.; Konttinen, Y. T.
- CS Department of Anatomy, University of Helsinki, Helsinki, FIN-00014,
Finland
- SO Journal of Dental Research (2000), 79(11), 1870-1873
CODEN: JDREAF; ISSN: 0022-0345
- PB International Association for Dental Research
- DT Journal
- LA English
- CC 14-7 (Mammalian Pathological Biochemistry)
- AB The loosening of dental implants is assocd. with peri-implant vertical
bone loss. The mechanisms and mediators of this bone
destruction are not known. To test the hypothesis that
collagenase-2 and collagenase-3 might be
markers or maybe even mediators in this process, we measured
collagenase-2 (time-resolved immunofluorometric assay) and
collagenase-3 (quant. immunoblot) in peri-implant sulcus
fluid in 49 implant sites in 13 patients. Vertical bone loss
was graded as being < 1 mm, from 1 to 3 mm, or > 3 mm. The severity of
inflammation, as rated according to Gingival Index, did not correlate with
the category of bone loss (p > 0.05). Collagenase-2
and collagenase-3 were higher (p < 0.05) in the group
which had lost > 3 mm of bone than in the two other groups.
Gingival Index is not a clin. important marker for bone
loss, but collagenase-2 and collagenase-3 in
peri-implant sulcus fluid are. They might participate in peri-implant
osteolysis.
- ST collagenase dental bone loss marker implant
- IT Biomarkers (biological responses)
Neutrophil
Osteoclast
(collagenase-2 and collagenase-3 as
markers of dental peri-implant vertical bone loss in
human)
- IT Bone
(demineralization; collagenase-2 and collagenase-
3 as markers of dental peri-implant vertical
bone loss in human)
- IT Dental materials and appliances
(implants; collagenase-2 and collagenase-3
as markers of dental peri-implant vertical bone
loss in human)
- IT Tooth
(mesenchyme; collagenase-2 and collagenase-
3 as markers of dental peri-implant vertical
bone loss in human)
- IT 175449-82-8, Collagenase-3
RL: BOC (Biological occurrence); BSU (Biological study,
unclassified); THU (Therapeutic use); BIOL (Biological study); OCCU
(Occurrence); USES (Uses)
(collagenase-2 and collagenase-3 as
markers of dental peri-implant vertical bone loss in
human)
- IT 9001-12-1, Collagenase
RL: BOC (Biological occurrence); BSU (Biological study,
unclassified); THU (Therapeutic use); BIOL (Biological study); OCCU
(Occurrence); USES (Uses)
(type 2; collagenase-2 and collagenase-3
as markers of dental peri-implant vertical bone
loss in human)
- RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Batge, B; Eur J Clin Invest 1992, V22, P805 MEDLINE
- (2) Billinghamurst, R; J Clin Invest 1997, V99, P1534 HCAPLUS
- (3) Chubinskaya, S; Lab Invest 1996, V74, P232 HCAPLUS
- (4) Ciancio, S; J Clin Periodontol 1986, V13, P375 MEDLINE
- (5) Delaisse, J; Biology and physiology of the osteoclast 1992, P290
- (6) Freijs, J; J Biol Chem 1994, V269, P16766 HCAPLUS
- (7) Golub, L; Inflamm Res 1997, V46, P310 HCAPLUS
- (8) Gross, U; J Dent Educ 1988, V52, P798 MEDLINE
- (9) Hanemaaijer, R; J Biol Chem 1997, V272, P31504 HCAPLUS
- (10) Hasty, K; J Biol Chem 1987, V262, P10048 HCAPLUS
- (11) Imai, S; J Bone Joint Surg Br 1998, V80, P701 MEDLINE
- (12) Ingman, T; J Clin Periodontol 1994, V21, P301 MEDLINE
- (13) Ingman, T; J Clin Periodontol 1996, V23, P1127 MEDLINE
- (14) Jeffcoat, M; Periodontol 1995, V2000(7), P54
- (15) Leonhardt, A; Clin Oral Implants Res 1999, V10, P339 MEDLINE
- (16) Loe, H; J Periodontol 1967, V38, P610
- (17) O'Roark, W; J Oral Implantol 1997, V23, P90 MEDLINE
- (18) Strid, K; Tissue-integrated prostheses, osseointegration in clinical dentistry 1985, P187
- (19) Swanberg, D; Implant Soc 1995, V6, P12 MEDLINE
- (20) Teronen, O; J Dent Res 1997, V76, P1529 HCAPLUS

L98 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:848855 HCAPLUS

DN 134:54990

TI Induction of collagenase-3 (MMP-13)
) in rheumatoid arthritis synovial
 fibroblasts

AU Moore, Bryan A.; Aznavoorian, Sadie; Engler, Jeffrey A.; Windsor, L. Jack
 CS Research Center in Oral Cancer, University of Alabama at Birmingham,
 Birmingham, AL, 35294, USA

SO Biochimica et Biophysica Acta (2000), 1502(2), 307-318
 CODEN: BBACAQ; ISSN: 0006-3002

PB Elsevier Science B.V.

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB There is a growing body of evidence that implicates matrix metalloproteinases (MMPs) as major players in numerous diseased conditions. The articular cartilage degradn. that is characteristic of rheumatoid arthritis (RA) is believed to be mediated by the collagenase subfamily of matrix metalloproteinases. The preference of collagenase-3 (CL-3) for collagen type II makes it a likely candidate in the turnover of articular cartilage and a potential target for drug development. In this study, RA synovial membrane tissue was shown to express CL-3 mRNA by reverse transcriptase-polymerase chain reaction (RT-PCR) and protein by immunohistochem. Fibroblasts isolated and cultured from RA synovial membrane tissue were induced to express CL-3 mRNA. CL-3 mRNA was detected after PMA treatment in 16 of the 18 RA synovial membrane fibroblast cell lines established for this study. These fibroblasts also expressed mRNA for collagenase-1 (CL-1, MMP-1), membrane type-1 matrix metalloproteinase, gelatinase A, gelatinase B, stromelysin-1, stromelysin-2, TIMP-1, and TIMP-2. They were further shown to express CL-1 mRNA constitutively and CL-3 mRNA only after stimulation with PMA, IL-1, TGF-.beta.1, TNF-.alpha., or IL-6 with IL-6sR. These fibroblasts also expressed after induction both CL-1 and CL-3 at the protein level as detd. by Western blot analyses and immunofluorescence.

ST collagenase 3 induction rheumatoid

- arthritis synovial fibroblast**
- IT Interleukin 6
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(induction by sol. receptor and; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**
- IT Interleukin 1
Tumor necrosis factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(induction by; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**
- IT Animal cell line
Fibroblast
Rheumatoid arthritis
Synovial membrane
Transcription, genetic
(induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans**)
- IT mRNA
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process)
(induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans**)
- IT Gene, animal
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans**)
- IT Interleukin 6 receptors
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(sol., induction by interleukin-6 and; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**
- IT Transforming growth factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(.beta.1-, induction by; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**
- IT 175449-82-8, Collagenase 3
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans**)
- IT 141436-78-4, Protein kinase C
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(induction via; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**

IT 79955-99-0, Stromelysin 1 124861-55-8, Proteinase inhibitor, TIMP-2
 140208-24-8, Proteinase inhibitor, TIMP-1 140610-48-6, Stromelysin-2
 146480-35-5, Gelatinase A 146480-36-6,
 Gelatinase B 161384-17-4, Membrane type-1
 matrix metalloproteinase

RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (mRNA; induction of collagenase-3 (
 MMP-13) in rheumatoid arthritis
 synovial fibroblasts from humans in relation to)

IT 9001-12-1, Collagenase

RL: BOC (Biological occurrence); BSU (Biological study,
 unclassified); BIOL (Biological study); OCCU (Occurrence)
 (type 1; induction of collagenase-3 (MMP-
 13) in rheumatoid arthritis
 synovial fibroblasts from humans in relation to)

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Birkedal-Hansen, B; Biochemistry 1988, V27, P6751 HCAPLUS
- (2) Birkedal-Hansen, H; Crit Rev Oral Biol Med 1993, V4, P197 MEDLINE
- (3) Birkedal-Hansen, H; Immunol Invest 1989, V18, P211 HCAPLUS
- (4) Birkedal-Hansen, H; Methods Enzymol 1987, V144, P140 HCAPLUS
- (5) Borden, P; J Biol Chem 1996, V271, P23577 HCAPLUS
- (6) Bradford, M; Anal Biochem 1976, V72, P248 HCAPLUS
- (7) Fosang, A; FEBS Lett 1996, V380, P17 HCAPLUS
- (8) Freije, J; J Biol Chem 1994, V269, P16766 HCAPLUS
- (9) Henriot, P; FEBS Lett 1992, V310, P175 HCAPLUS
- (10) Knauper, V; J Biol Chem 1996, V271, P1544 HCAPLUS
- (11) Konttinen, Y; Ann Rheum Dis 1999, V58, P683 HCAPLUS
- (12) Konttinen, Y; Ann Rheum Dis 1999, V58, P691 HCAPLUS
- (13) Konttinen, Y; Matrix Biol 1999, V18, P401 HCAPLUS
- (14) Laemmli, U; Nature 1970, V227, P680 HCAPLUS
- (15) Lindy, O; Arthritis Rheum 1997, V40, P1391 HCAPLUS
- (16) Nagase, H; J Biol Chem 1999, V274, P21491 HCAPLUS
- (17) Quinn, C; J Biol Chem 1990, V265, P22342 HCAPLUS
- (18) Reboul, P; J Clin Invest 1996, V97, P2011 HCAPLUS
- (19) Sanger, F; Proc Natl Acad Sci USA 1977, V74, P5463 HCAPLUS
- (20) Singer, C; Eur J Biochem 1999, V259, P40 HCAPLUS
- (21) Stahle-Backdahl, M; Lab Invest 1997, V76, P717 MEDLINE
- (22) Studier, F; J Mol Biol 1986, V189, P113 HCAPLUS
- (23) Tetlow, L; Br J Rheumatol 1998, V37, P64 HCAPLUS
- (24) Uria, J; J Biol Chem 1998, V273, P9769 HCAPLUS
- (25) Vincenti, M; Biochem J 1998, V331, P341 HCAPLUS
- (26) Wernicke, C; J Rheumatol 1996, V23, P590
- (27) Westhoff, C; Arthritis Rheum 1999, V42, P1517 HCAPLUS
- (28) Wrenn, D; J Biol Chem 1988, V263, P2280 HCAPLUS

L98 ANSWER 10 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:722963 HCAPLUS

DN 133:361612

TI Matrix metalloproteinase-13 expression in
 rabbit knee joint connective tissues:
 influence of maturation and response to injury

AU Le Graverand, Marie-Pierre Hellio; Eggerer, Jonna; Sciore, Paul; Reno,
 Carol; Vignon, Eric; Otterness, Ivan; Hart, David A.

CS McCaig Center for Joint Injury and Arthritis Research, Faculty of
 Medicine, University of Calgary, AB, T2N 4N1, Can.

SO Matrix Biology (2000), 19(5), 431-441
 CODEN: MTBOEC; ISSN: 0945-053X

PB Elsevier Science B.V.

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB The hypothesis of the present work was that expression of matrix

metalloproteinase-13 (MMP-13, collagenase-3) would be induced during conditions involving important matrix remodeling such as ligament maturation, scar healing and joint instability. Therefore, **MMP-13** expression in the medial collateral ligament (MCL) during the variable situations of tissue maturation and healing was assessed. **MMP-13** expression in three intra-articular **connective tissues** of the knee (i.e. articular **cartilage**, menisci and **synovium**) following the transection of the anterior cruciate ligament of the knee was evaluated at 3 and 8 wk post-injury. **MMP-13 mRNA** (semi-quant. RT-PCR) and protein (immunohistochem. and Western blotting) were detected in all of the tissues studied. Significantly higher **MCL mRNA** levels for **MMP-13** were detected during the early phases of tissue maturation (i.e. 29 days in utero and 2-mo-old rabbits) compared to later phases (5- and 12-mo-old rabbits). This pattern of expression was recapitulated following MCL injury, with very high levels of expression in scar tissue at 3 wk post-injury and then a decline to levels not significantly different from control values by 14 wk. Elevated **mRNA** levels correlated with increased protein levels for **MMP-13** in both menisci and **synovium** following the transection of the anterior cruciate ligament and during medial collateral ligament healing. These results indicate that **MMP-13** expression is regulated by a no. of variables and that high levels of expression occur in situations when **connective tissue** remodeling is very active.

- ST matrix **metalloproteinase MMP13** knee joint
 connective tissue maturation injury
- IT Ligament
 (anterior cruciate, injury; **matrix metalloproteinase -13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Cartilage
 (articular; **matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Embryo, animal
 (fetus; **matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Joint, anatomical
 (knee; **matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Connective tissue
 Development, mammalian postnatal
 Granulation tissue
Synovial membrane
 Transcription, genetic
 (**matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT mRNA
 RL: BOC (**Biological occurrence**); BSU (**Biological study**, unclassified); BIOL (**Biological study**); OCCU (**Occurrence**)
 (**matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Ligament
 (medial collateral, injury; **matrix metalloproteinase -13** expression in rabbit knee joint **connective tissues** and influence of maturation and

response to injury)
 IT **Joint, anatomical**
 (meniscus; **matrix metalloproteinase-13**
 expression in rabbit knee **joint connective**
tissues and influence of maturation and response to injury)
 IT **175449-82-8, Matrix metalloproteinase-**
13
 RL: BOC (**Biological occurrence**); BSU (Biological study,
 unclassified); BIOL (Biological study); OCCU (**Occurrence**)
 (**matrix metalloproteinase-13** expression
 in rabbit knee **joint connective tissues**
 and influence of maturation and response to injury)
 RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Chimich, D; J Orthop Res 1996, V9, P37
- (2) Emonard, H; Cell Mol Biol 1990, V36, P131 HCAPLUS
- (3) Fernandes, J; J Rheumatol 1998, V25, P1585 HCAPLUS
- (4) Fosang, A; FEBS Lett 1996, V380, P17 HCAPLUS
- (5) Frank, C; Connect Tissue Res 1992, V27, P251 MEDLINE
- (6) Frank, C; J Orthop Res 1985, V1, P179
- (7) Freije, J; J Biol Chem 1994, V269, P16766 HCAPLUS
- (8) Hart, D; Biochim Biophys Acta 1998, V1397, P331 HCAPLUS
- (9) Hart, D; Matrix Biol 1998, V17, P21 HCAPLUS
- (10) Hasty, K; J Biol Chem 1990, V265, P11421 HCAPLUS
- (11) Hellio Le Graverand, M; Osteoarthritis Cart 1998, V6, P341 MEDLINE
- (12) Hellio Le Graverand, M; to be published in Osteoarthritis Cart 2000
- (13) Hellio Le Graverand, M; to be published in Osteoarthritis Cart 2000
- (14) Huebner, J; Arthritis Rheum 1998, V41, P877 HCAPLUS
- (15) Jimenez, M; Mol Cell Biol 1999, V19, P4431 HCAPLUS
- (16) Johansson, N; Dev Dyn 1997, V208, P387 HCAPLUS
- (17) Knauper, V; J Biol Chem 1996, V271, P1544 HCAPLUS
- (18) Kossakowska, A; Am J Pathol 1998, V153, P1895 HCAPLUS
- (19) Lindy, O; Arthritis Rheum 1997, V40, P1391 HCAPLUS
- (20) Marchuk, L; Biochim Biophys Acta 1997, V1379, P171
- (21) Mitchell, P; J Clin Invest 1996, V97, P761 HCAPLUS
- (22) Murphy, P; Biochem Cell Biol 1993, V71, P522 HCAPLUS
- (23) Otterness, I; Arthritis Rheum 1998, V41, P2068 MEDLINE
- (24) Otterness, I; Matrix Biol 1999, V18, P331 HCAPLUS
- (25) Pendas, A; Genomics 1997, V40, P222 HCAPLUS
- (26) Planus, E; J Cell Sci 1999, V112, P243 HCAPLUS
- (27) Reboul, P; J Clin Invest 1996, V97, P2011 HCAPLUS
- (28) Reno, C; Biochem Biophys Res Commun 1998, V252, P757 HCAPLUS
- (29) Reno, C; Biotechniques 1997, V22, P1082 HCAPLUS
- (30) Stahle-Backdahl, M; Lab Invest 1997, V76, P717 MEDLINE
- (31) Vaalamo, M; J Invest Dermatol 1997, V109, P96 MEDLINE
- (32) Vignon, E; J Rheumatol 1987, V14, P104
- (33) Vincenti, M; Biochem J 1998, V331, P341 HCAPLUS
- (34) Wernicke, D; J Rheumatol 1996, V23, P590 HCAPLUS
- (35) Woessner, J; FASEB J 1991, V5, P2145 HCAPLUS
- (36) Yamagiwa, H; Bone 1999, V25, P197 HCAPLUS
- (37) Yoshioka, M; Osteoarthritis Cart 1996, V4, P87 MEDLINE

L98 ANSWER 11 OF 28 HCAPLUS COPYRIGHT 2002 ACS
 AN 2000:686096 HCAPLUS
 DN 133:221243
 TI **Collagenase 3 as disease marker for**
joint degeneration in rheumatoid arthritis and
application for the prognosis and determination of
genetic predisposition
 IN **Wernicke, Dirk; Gromnica-Ihle, Erika; Freudiger,**
Dirk; Schulze, Westhoff Claudia
 PA Max-Delbrueck-Centrum fuer Molekulare Medizin, Germany
 SO Ger. Offen., 10 pp.

CODEN: GWXXBX
 DT Patent
 LA German
 IC ICM C12Q001-34
 ICS A61K048-00
 CC 14-11 (Mammalian Pathological Biochemistry)
 Section cross-reference(s): 1, 7

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19913428	A1	20000928	DE 1999-19913428	19990325
	WO 2000058502	A2	20001005	WO 2000-DE881	20000324
	W: JP, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	WO 2000058502	A3	20001116	WO 2000-DE881	20000324
	W: JP, US				
	RW: AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRAI DE 1999-19913428 A 19990325

AB The invention concerns **collagenase 3** as disease marker for the **prognosis** of joint degeneration in **rheumatoid arthritis** patients by detg. **collagenase 3 mRNA** expression and the catalytic activity of the enzyme in **synovial membrane**, **synovial fluid** or blood. In addn., other markers are measured: **HLA-antigens**, **MT1-MMP** and/or **Gelatinase A**. The invention also concerns the detn. of the markers during therapy with specific or non-specific **collagenase-3** inhibitors.

ST **collagenase** disease marker joint degeneration **rheumatoid arthritis** genetic predisposition

IT Histocompatibility antigens
 RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
 (HLA; **collagenase 3** as disease marker for joint degeneration in **rheumatoid arthritis** and application for **prognosis** and detn. of genetic predisposition)

IT Blood analysis
 Northern blot hybridization
 Rheumatoid arthritis
 Susceptibility (genetic)
 Synovial fluid
 Synovial membrane
 (collagenase 3 as disease marker for joint degeneration in **rheumatoid arthritis** and application for **prognosis** and detn. of genetic predisposition)

IT mRNA
 RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
 (collagenase 3 as disease marker for joint degeneration in **rheumatoid arthritis** and application for **prognosis** and detn. of genetic predisposition)

IT Antirheumatic agents
 (disease modifying, DMARD; **collagenase 3** as disease marker for joint degeneration in **rheumatoid arthritis** and application for **prognosis** and detn. of

- genetic predisposition)
 IT 146480-35-5, Gelatinase A 161384-17-4
 , MT1-MMP 175449-82-8, Collagenase
 3
 RL: ANT (Analyte); BOC (Biological occurrence); BSU
 (Biological study, unclassified); THU (Therapeutic use); ANST
 (Analytical study); BIOL (Biological study); OCCU
 (Occurrence); USES (Uses)
 (collagenase 3 as disease marker for
 joint degeneration in rheumatoid arthritis
 and application for prognosis and detn. of genetic
 predisposition)
- IT 50-24-8, Prednisolone 54-05-7, Chloroquine 59-05-2, Methotrexate
 446-86-6, Azathioprine 599-79-1, Sulfasalazine 12244-57-4,
 Gold-sodiumthiomalate
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological
 study, unclassified); BIOL (Biological study)
 (collagenase 3 as disease marker for
 joint degeneration in rheumatoid arthritis
 and application for prognosis and detn. of genetic
 predisposition)
- L98 ANSWER 12 OF 28 HCAPLUS COPYRIGHT 2002 ACS
 AN 2000:649726 HCAPLUS
 DN 133:320050
 TI Spatiotemporal change of rat collagenase (MMP-
 13) mRNA expression in the development of the rat
 femoral neck
 AU Hayami, Tadashi; Endo, Naoto; Tokunaga, Kunihiro; Yamagiwa, Hiroshi;
 Hatano, Hiroshi; Uchida, Motoyuki; Takahashi, Hideaki E.
 CS Department of Orthopedic Surgery, Niigata University School of Medicine,
 Niigata, 951-8510, Japan
 SO Journal of Bone and Mineral Metabolism (2000), 18(4), 185-193
 CODEN: JBMME4; ISSN: 0914-8779
 PB Springer-Verlag Tokyo
 DT Journal
 LA English
 CC 13-3 (Mammalian Biochemistry)
 AB The interepiphyseal region between the greater trochanter and the capital
 femoral epiphysis and the medioproximal portion of the femoral neck
 exhibit extensive morphol. changes during the first 4 wk after birth in
 rats. Previous reports show that **matrix**
metalloproteinase-13 (MMP-13, rat
collagenase) mRNA is expressed in **bone** and
cartilage during embryonal development and fracture healing. We
 examd. **MMP-13 mRNA** expression and compared
 it with the distribution of **osteopontin** and **osteocalcin**
mRNA in the femoral neck. Moreover, we examd. histomorphometric
 anal. in the femoral neck where the morphol. changes rapidly.
 Histomorphometric anal. of the 4-wk-old rat femoral neck showed a high
 rate of **bone** formation and resorption in the region where shape
 changed rapidly. **Osteopontin mRNA** was expressed
 diffusely along the endosteum. In contrast, **MMP-13**
mRNA expression was restricted to the medial endosteal portion
 near the **cartilage-bone** interface of the femoral neck
 in 15- and 28-day-old rats and in the deepest endosteal interepiphyseal
 region of 15-day-old rats. **MMP-13 mRNA**
 -expressing **osteoblastic** cells were also expressing
osteopontin but not **osteocalcin mRNA**.
MMP-13 mRNA-expressing cells differ from
 tartrate-resistant acid phosphatase (TRAP) -pos. cells, and **MMP-**
13 mRNA-pos. cells are located adjacent to TRAP-pos.
 cells. The results of the site- and cell-specific expression of

MMP-13, taken together with its enzymic property, suggest that **MMP-13** plays an important role in morphol. changes in the rat femur, at least during the third and fourth week after birth, and that **MMP-13** itself is involved in the interaction between **osteoblastic** and TRAP-pos. cells.

ST **collagenase osteopontin RNA**
osteoblast femur bone development

IT **mRNA**
RL: **BOC (Biological occurrence)**; BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**); PROC (Process)
(**collagenase (MMP-13)**; spatiotemporal change of rat **collagenase (MMP-13)** **mRNA** expression in development of rat femoral neck)

IT **Bone**
(endosteum; spatiotemporal change of rat **collagenase (MMP-13)** **mRNA** expression in development of rat femoral neck)

IT **Bone**
(femur; spatiotemporal change of rat **collagenase (MMP-13)** **mRNA** expression in development of rat femoral neck)

IT **mRNA**
RL: **BOC (Biological occurrence)**; BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**); PROC (Process)
(**osteopontin**; spatiotemporal change of rat **collagenase (MMP-13)** **mRNA** expression in development of rat femoral neck)

IT **Bone formation**
Development, mammalian postnatal
Osteoblast
(spatiotemporal change of rat **collagenase (MMP-13)** **mRNA** expression in development of rat femoral neck)

RE.CNT 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Billingham, R; J Clin Invest 1997, V99, P1534 HCAPLUS
- (2) Blavier, L; J Cell Sci 1995, V108, P3649 HCAPLUS
- (3) Freemont, A; Ann Rheum Dis 1997, V56, P542 MEDLINE
- (4) Freije, J; J Biol Chem 1994, V269, P16766 HCAPLUS
- (5) Gack, S; Cell Growth Differ 1995, V6, P759 HCAPLUS
- (6) Germiller, J; J Orthop Res 1997, V15, P362 MEDLINE
- (7) Hatano, H; J Patholol 1998, V185, P204 MEDLINE
- (8) Henriet, P; FEBS Lett 1992, V310, P175 HCAPLUS
- (9) Hillam, R; J Bone Miner Res 1995, V10, P683 MEDLINE
- (10) Hirakawa, K; J Bone Miner Res 1994, V9, P1551 HCAPLUS
- (11) Hirota, S; Am J Pathol 1993, V143, P1003 HCAPLUS
- (12) Holliday, L; J Biol Chem 1997, V272, P22053 HCAPLUS
- (13) Huebner, J; Arthritis Rheum 1998, V41, P877 HCAPLUS
- (14) Johansson, N; Am J Pathol 1997, V151, P499 HCAPLUS
- (15) Johansson, N; Dev Dynam 1997, V208, P387 HCAPLUS
- (16) Keret, D; J Bone Joint Surg 1991, V73, P410 MEDLINE
- (17) Knauper, V; J Biol Chem 1996, V271, P1544 HCAPLUS
- (18) Knauper, V; J Biol Chem 1996, V271, P17124 MEDLINE
- (19) Mitchell, P; J Clin Invest 1996, V97, P761 HCAPLUS
- (20) Nakamura, Y; J Histochem Cytochem 1991, V39, P1415 HCAPLUS
- (21) Nakase, T; Bone Miner 1994, V26, P109 HCAPLUS
- (22) Nomura, S; Connect Tissue Res 1989, V21, P31 MEDLINE
- (23) Nomura, S; J Cell Biol 1988, V106, P441 HCAPLUS
- (24) Ogden, J; Hip 1981, P139 MEDLINE
- (25) Ogden, J; J Bone Joint Surg 1974, V56, P941 MEDLINE
- (26) Parfitt, A; J Bone Miner Res 1987, V2, P595 MEDLINE

- (27) Quinn, C; J Biol Chem 1990, V265, P22342 HCAPLUS
- (28) Reinholdt, F; Proc Natl Acad Sci USA 1990, V87, P4473 HCAPLUS
- (29) Rice, D; Bone 1997, V21, P479 HCAPLUS
- (30) Robertson, D; Clin Orthop Relat Res 1996, V327, P196
- (31) Rubin, C; J Bone Joint Surg 1984, V66, P397 MEDLINE
- (32) Shlopov, B; Arthritis Rheum 1997, V40, P2065 HCAPLUS
- (33) Siffert, R; Clin Orthop Relat Res 1981, V160, P14
- (34) Stahle-Backdahl, M; Lab Invest 1997, V76, P717 MEDLINE
- (35) Stahle-Backdahl, M; Lab Invest 1997, V76, P717 MEDLINE
- (36) Sugano, N; J Bone Joint Surg 1998, V80, P711 MEDLINE
- (37) Tokunaga, K; Bone 1996, V19, P447 MEDLINE
- (38) Vincenti, M; Biochem J 1998, V331, P341 HCAPLUS
- (39) Vu, T; Cell 1998, V93, P411 HCAPLUS
- (40) Yamagiwa, H; Bone 1999, V25, P197 HCAPLUS

L98 ANSWER 13 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:444772 HCAPLUS

DN 133:333413

TI Matrix **metalloproteinases** and tissue inhibitors of **metalloproteinases** in **synovial fluids** from patients with **rheumatoid arthritis** or **osteoarthritis**

AU Yoshihara, Yasuo; Nakamura, Hiroyuki; Obata, Ken'ichi; Yamada, Harumoto; Hayakawa, Taro; Fujikawa, Kyosuke; Okada, Yasunori

CS Department of Orthopaedic Surgery, National Defence Medical College, UK

SO Annals of the Rheumatic Diseases (2000), 59(6), 455-461

CODEN: ARDIAO; ISSN: 0003-4967

PB BMJ Publishing Group

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB Matrix **metalloproteinases** (**MMPs**) are expressed in joint tissues of patients with **rheumatoid arthritis** (RA) and **osteoarthritis** (OA). The objective of this study was to define the steady state levels of 7 different **MMPs** and 2 tissue inhibitors of **metalloproteinases** (**TIMPs**) as well as the potential **metalloproteinase** activity in the **synovial fluid** (SF) to provide more insight into the role of **MMPs** in **cartilage** destruction in RA and OA. Levels of **MMP-1**, **MMP-2**, **MMP-3**, **MMP-7**, **MMP-8**, **MMP-9**, **MMP-13**, **TIMP-1**, and **TIMP-2** in SF aspirated from knee joints of 97 patients with RA and 103 patients with OA were measured by the corresponding one step sandwich enzyme immunoassays. Proteolytic activity of **MMPs** in these SFs was examd. in an assay using [³H]carboxymethylated transferrin substrate in the presence of inhibitors of Ser and Cys proteinases after activation with p-aminophenylmercuric acetate (APMA). Destruction of RA knee joints was radiog. evaluated. Levels of **MMP-1**, **MMP-2**, **MMP-3**, **MMP-8**, and **MMP-9** were significantly higher in RA SF than in OA SF. **MMP-7** and **MMP-13** were detectable in more than 45% of RA SFs and in less than 20% of OA SFs, resp. Among the **MMPs** examd., **MMP-3** levels were extremely high compared with those of other **MMPs**. Direct correlations were seen between the levels of **MMP-1** and **MMP-3** and between those of **MMP-8** and **MMP-9** in RA SF. Although the levels of **MMP-1** and **MMP-3** increased even in the early stage of RA, those of **MMP-8** and **MMP-9** were low in the early stage and increased with the progression of RA. Molar ratios of the total amts. of the **MMPs** to those of the **TIMPs** were 5.2-fold higher in patients with RA than in OA, which was significant. APMA-activated **metalloproteinase** activity in SF showed a similar result, and a direct correlation was seen

between the molar ratios and the activity in RA SF. These results show that high levels of **MMP-1, MMP-2, MMP-3, MMP-8, MMP-9**, and **TIMP-1** are present in RA SF and suggest that once these **MMPs** are fully activated, they have an imbalance against **TIMPs**, which may contribute to the **cartilage** destruction in RA.

ST matrix **metalloproteinase** tissue inhibitor **synovial fluid rheumatoid arthritis; MMP TIMP synovial fluid rheumatoid arthritis; osteoarthritis MMP TIMP synovial fluid**

IT **Osteoarthritis**
Rheumatoid arthritis
Synovial fluid
 (MMPs and TIMPs in **synovial fluids** from **rheumatoid arthritis or osteoarthritis**)

IT 9001-12-1, **MMP-1**
 RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
 (MMP-1, **MMP-8**; **MMPs** and **TIMPs** in **synovial fluids** from **rheumatoid arthritis or osteoarthritis**)

IT 79955-99-0, **MMP-3** 124861-55-8, **TIMP-2** 140208-24-8, **TIMP-1** 141256-52-2, **MMP 7** 141907-41-7, **Matrix metalloproteinase** 145266-99-5, **Metalloproteinase inhibitor** 146480-35-5, **MMP 2** 146480-36-6, **MMP 9** 175449-82-8, **MMP-13**
 RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
 (MMPs and TIMPs in **synovial fluids** from **rheumatoid arthritis or osteoarthritis**)

RE.CNT 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Ahrens, D; Arthritis Rheum 1996, V39, P1576 MEDLINE
- (2) Altman, R; Arthritis Rheum 1986, V29, P1039 MEDLINE
- (3) Arnett, F; Arthritis Rheum 1988, V31, P315 MEDLINE
- (4) Bartlett, J; Gene 1996, V183, P123 HCAPLUS
- (5) Beekman, B; FEBS Lett 1997, V418, P305 HCAPLUS
- (6) Birkedal-Hansen, H; Crit Rev Oral Biol Med 1993, V4, P197 MEDLINE
- (7) Cawston, T; Br J Rheumatol 1987, V26, P354 MEDLINE
- (8) Chatham, W; Arthritis Rheum 1990, V33, P228 HCAPLUS
- (9) Clark, I; Arthritis Rheum 1993, V36, P372 MEDLINE
- (10) Cole, A; J Biol Chem 1996, V271, P11023 HCAPLUS
- (11) Cooper, T; Proc Natl Acad Sci USA 1985, V82, P2779 HCAPLUS
- (12) DiBattista, J; J Rheumatol 1995, V22(suppl 43), P123
- (13) Farr, M; Rheumatol Int 1984, V4, P13 MEDLINE
- (14) Firestein, G; The text book of rheumatology. 5th ed 1996, P851
- (15) Frisch, S; Proc Natl Acad Sci USA 1987, V84, P2600 HCAPLUS
- (16) Fujimoto, N; Clin Chim Acta 1993, V220, P31 HCAPLUS
- (17) Fujimoto, N; Clin Chim Acta 1993, V221, P91 HCAPLUS
- (18) Fujimoto, N; Clin Chim Acta 1994, V231, P79 HCAPLUS
- (19) Gravallesse, E; Arthritis Rheum 1991, V34, P1076 MEDLINE
- (20) Greene, J; J Biol Chem 1996, V271, P30375 HCAPLUS
- (21) Grillet, B; Br J Rheumatol 1997, V36, P744 HCAPLUS
- (22) Hanemaaijier, R; J Biol Chem 1997, V272, P31504
- (23) Hembry, R; Ann Rheum Dis 1995, V54, P25 MEDLINE
- (24) Kodama, S; J Immunol Methods 1990, V127, P103 HCAPLUS
- (25) Larsen, A; Acta Radiol Diagn 1977, V18, P481 MEDLINE
- (26) Matsuki, H; Clin Chim Acta 1996, V244, P129 HCAPLUS
- (27) McCachren, S; Arthritis Rheum 1991, V34, P1085 MEDLINE
- (28) Mohtai, M; J Clin Invest 1993, V92, P179 HCAPLUS
- (29) Mudgett, J; Arthritis Rheum 1998, V41, P110 HCAPLUS
- (30) Nagase, H; Biol Chem 1997, V378, P151 HCAPLUS
- (31) Nagase, H; Joint cartilage degradation 1993, P159 HCAPLUS

- (32) Nagase, H; The text book of rheumatology. 5th ed 1996, P323
- (33) Nguyen, Q; J Clin Invest 1992, V89, P1189 HCAPLUS
- (34) Obata, K; Clin Chim Acta 1993, V221, P59
- (35) Ohta, S; Lab Invest 1998, V78, P79 MEDLINE
- (36) Ohuchi, E; Clin Chim Acta 1996, V244, P181 HCAPLUS
- (37) Okada, Y; Ann Rheum Dis 1989, V48, P645 MEDLINE
- (38) Okada, Y; J Biol Chem 1986, V261, P14245 HCAPLUS
- (39) Okada, Y; Lab Invest 1992, V66, P680 MEDLINE
- (40) Okada, Y; Virch Arch B Cell Pathol 1990, V59, P305 HCAPLUS
- (41) Pei, D; J Biol Chem 1999, V274, P8925 HCAPLUS
- (42) Pendas, A; J Biol Chem 1997, V272, P4281 HCAPLUS
- (43) Puente, X; Cancer Res 1996, V56, P944 HCAPLUS
- (44) Reboul, P; J Clin Invest 1996, V97, P2011 HCAPLUS
- (45) Sato, H; Nature 1994, V370, P61 HCAPLUS
- (46) Shinmei, M; J Rheumatol 1995, V22(suppl 43), P78
- (47) Sopata, I; Rheumatol Int 1995, V15, P9 MEDLINE
- (48) Stephenson, M; Biochem Biophys Res Commun 1987, V144, P583 HCAPLUS
- (49) Stoop, R; Transactions of 44th Orthopaedic Research Society 1998, P851
- (50) Takino, T; J Biol Chem 1995, V270, P23013 HCAPLUS
- (51) Takizawa, M; to be published in Arthritis Rheum
- (52) Tamei, H; Connect Tissue Res 1998, V30, P15 HCAPLUS
- (53) Uria, J; Cancer Res 1994, V54, P2091 HCAPLUS
- (54) van Meurs, J; Transactions of 44th Orthopaedic Research Society 1998, P856
- (55) Velasco, G; J Biol Chem 1999, V274, P4570 HCAPLUS
- (56) Walakovits, L; Arthritis Rheum 1992, V35, P35 MEDLINE
- (57) Wernicke, D; J Rheumatol 1996, V23, P590 HCAPLUS
- (58) Will, H; Eur J Biochem 1995, V231, P602 HCAPLUS
- (59) Wolfe, G; Arthritis Rheum 1993, V36, P1540 HCAPLUS
- (60) Yoshihara, Y; Arthritis Rheum 1995, V38, P969 MEDLINE
- (61) Zafarullah, M; J Rheumatol 1993, V20, P693 HCAPLUS
- (62) Zang, J; Clin Chim Acta 1993, V219, P1

L98 ANSWER 14 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:268920 HCAPLUS

DN 132:306260

TI Localization of matrix **metalloproteinases** and TIMP-2 in resorbing mouse **bone**

AU Dew, Gary; Murphy, Gillian; Stanton, Heather; Vallon, Rudiger; Angel, Peter; Reynolds, John J.; Hembry, Rosalind M.

CS Strangeways Research Laboratory, Cambridge, CB1 8RN, UK

SO Cell & Tissue Research (2000), 299(3), 385-394

CODEN: CTSRCS; ISSN: 0302-766X

PB Springer-Verlag

DT Journal

LA English

CC 13-6 (Mammalian Biochemistry)

AB There is strong evidence that matrix **metalloproteinases** (**MMPs**) play a crucial role during **osteogenesis** and **bone** remodeling. Their synthesis by **osteoblasts** has been demonstrated during **osteoid** degrdn. prior to resorption of mineralized matrix by **osteoclasts** and their activities are regulated by tissue inhibitors of **metalloproteinases** (TIMPs). Here, the authors developed and utilized specific polyclonal antibodies to assess the presence of **collagenase** (**MMP13**), **stromelysin 1** (**MMP3**), **gelatinase A** (**MMP2**), **gelatinase B** (**MMP9**), and TIMP-2 in both freshly isolated neonatal mouse calvariae and tissues cultured with and without **bone**-resorbing agents. Monensin was added toward the end of the culture period in order to promote intracellular accumulation of proteins and facilitate **antigen** detection. In addn., **bone** sections were stained for the **osteoclast marker**, tartrate-resistant acid phosphatase (TRAP). In uncultured tissues. the **bone** surfaces had isolated foci of

- collagenase staining, and cartilage matrix stained for gelatinase B (MMP9) and TIMP-2. Calvariae cultured for as little as 3 h with monensin revealed intracellular staining for MMPs and TIMP-2 in mesenchymal tissues, as well as in cells lining the bone plates. The addn. of cytokines to stimulate bone resorption resulted in pronounced TRAP activity along bone surfaces, indicating active resorption. There was a marked up-regulation of enzyme synthesis, with matrix staining for collagenase and gelatinase B obsd. in regions of eroded bone. Increased staining for TIMP-2 was also obsd. in assocn. with increased synthesis of MMPs. The new antibodies to murine MMPs should prove valuable in future studies of matrix degn. ST matrix metalloproteinase TIMP2 localization bone resorption
- IT Osteoclast
(localization of matrix metalloproteinases and TIMP-2 in resorbing mouse bone)
- IT Bone
(resorption; localization of matrix metalloproteinases and TIMP-2 in resorbing mouse bone)
- IT 79955-99-0, Matrix metalloproteinase 3 124861-55-8, TIMP-2 146480-35-5, Matrix metalloproteinase 2 146480-36-6, Matrix metalloproteinase 9 175449-82-8, Matrix metalloproteinase 13
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(localization of matrix metalloproteinases and TIMP-2 in resorbing mouse bone)
- IT 9001-77-8, Acid phosphatase
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(tartrate-resistant; localization of matrix metalloproteinases and TIMP-2 in resorbing mouse bone)
- RE.CNT 67 THERE ARE 67 CITED REFERENCES AVAILABLE FOR THIS RECORD
- RE
- (1) Baron, R; Am J Pathol 1986, V122, P363 MEDLINE
 - (2) Blavier, L; J Cell Sci 1995, V108, P3649 HCAPLUS
 - (3) Breckon, J; J Anat 1994, V184, P99 HCAPLUS
 - (4) Brown, C; J Bone Joint Surg 1989, V71A, P580
 - (5) Case, J; Am J Pathol 1989, V135, P1055 HCAPLUS
 - (6) Chin, J; Development 1997, V124, P1519 HCAPLUS
 - (7) Creemers, L; Matrix Biol 1998, V17, P35 HCAPLUS
 - (8) Delaisse, J; Biology and physiology of the osteoclast 1992, P289
 - (9) Delaisse, J; J Cell Sci 1993, V106, P1071 HCAPLUS
 - (10) d'Ortho, M; Eur J Biochem 1997, V250, P751 HCAPLUS
 - (11) d'Ortho, M; FEBS Lett 1998, V421, P159 HCAPLUS
 - (12) Eeckhout, Y; Biochem J 1986, V239, P793 HCAPLUS
 - (13) Ehrlich, M; J Orthop Res 1985, V3, P269 HCAPLUS
 - (14) Everts, V; Bone Miner 1993, V22, P43 HCAPLUS
 - (15) Everts, V; FASEB J 1999, V13, P1219 HCAPLUS
 - (16) Everts, V; J Cell Physiol 1992, V150, P221 HCAPLUS
 - (17) Fukae, M; Calcif Tissue Int 1992, V51, P151 HCAPLUS
 - (18) Gack, S; Cell Growth Diff 1995, V6, P759 HCAPLUS
 - (19) Gack, S; J Biol Chem 1994, V269, P10363 HCAPLUS
 - (20) Gelb, B; Science 1996, V273, P1236 HCAPLUS
 - (21) Gillet, C; FEBS Lett 1977, V74, P126 HCAPLUS
 - (22) Heath, J; Biochem Biophys Acta 1984, V802, P151 HCAPLUS
 - (23) Heath, J; Calcif Tissue Int 1984, V37, P95
 - (24) Hembry, R; Ann Rheum Dis 1995, V54, P25 MEDLINE
 - (25) Hill, P; Biochim Biophys Acta 1993, V1177, P71 HCAPLUS
 - (26) Hill, P; J Cell Biochem 1994, V56, P118 HCAPLUS
 - (27) Hill, P; J Cell Sci 1994, V107, P3055 HCAPLUS

- (28) Hipps, D; Biol Chem Hoppe-Seyler 1991, V372, P287 HCAPLUS
- (29) Holliday, L; J Biol Chem 1997, V272, P22053 HCAPLUS
- (30) Imai, K; Cancer Res 1996, V56, P2707 HCAPLUS
- (31) Knauper, V; J Biol Chem 1996, V271, P1544 HCAPLUS
- (32) Koklitis, P; Biochem J 1991, V276, P217 HCAPLUS
- (33) Kusano, K; Endocrinology 1998, V139, P1338 HCAPLUS
- (34) Liu, X; J Cell Biol 1995, V130, P227 HCAPLUS
- (35) Lorenzo, J; Matrix 1992, V12, P282 HCAPLUS
- (36) Mechanic, G; Excerpta Medica 1982, P322 HCAPLUS
- (37) Meikle, M; Biochim Biophys Acta 1994, V1224, P99 HCAPLUS
- (38) Meikle, M; Bone 1995, V17, P255 HCAPLUS
- (39) Meikle, M; Bone Miner 1991, V12, P41 HCAPLUS
- (40) Meikle, M; J Cell Sci 1992, V103, P1093 HCAPLUS
- (41) Minkin, C; Calcif Tissue Int 1982, V34, P285 HCAPLUS
- (42) Mundy, G; Bone and mineral research 1987, P209
- (43) Murphy, G; Biochem J 1989, V258, P463 HCAPLUS
- (44) Murphy, G; Biochem J 1991, V277, P277 HCAPLUS
- (45) Murphy, G; Biochim Biophys Acta 1985, V831, P49 HCAPLUS
- (46) Murphy, G; Connective tissue and its heritable disorders 1993, P287 HCAPLUS
- (47) Ohuchi, E; J Biol Chem 1997, V272, P2446 HCAPLUS
- (48) Okada, Y; Lab Invest 1995, V72, P311 HCAPLUS
- (49) Ostrowski, L; Mol Carcinog 1988, V1, P13 HCAPLUS
- (50) Peeters-Joris, C; Biochim Biophys Acta 1998, V1405, P14 HCAPLUS
- (51) Pei, D; J Biol Chem 1996, V271, P9135 HCAPLUS
- (52) Reponen, P; J Cell Biol 1994, V124, P1091 HCAPLUS
- (53) Reynolds, J; Matrix Suppl 1992, V1, P375 MEDLINE
- (54) Rice, D; Bone 1997, V21, P479 HCAPLUS
- (55) Rifas, L; Endocrinology 1994, V134, P213 HCAPLUS
- (56) Rifas, L; J Clin Invest 1989, V84, P686 HCAPLUS
- (57) Saklatvala, J; Biochem J 1984, V224, P461 HCAPLUS
- (58) Sato, T; J Cell Sci 1997, V110, P589 HCAPLUS
- (59) Suda, T; Endocr Rev 1992, V13, P66 MEDLINE
- (60) Tanaka, H; Biochem Biophys Res Commun 1993, V190, P732 HCAPLUS
- (61) Tezuka, K; J Biol Chem 1994, V269, P1106 HCAPLUS
- (62) van der Zee, E; J Periodont Res 1998, V33, P65 HCAPLUS
- (63) Ward, R; Biochem J 1991, V278, P179 HCAPLUS
- (64) Witty, J; J Bone Min Res 1996, V11, P72 HCAPLUS
- (65) Wucherpfennig, A; J Bone Min Res 1994, V9, P549 HCAPLUS
- (66) Zafarullah, M; J Cell Biochem 1996, V60, P211 HCAPLUS
- (67) Zwacka, R; EMBO J 1994, V13, P5129 HCAPLUS

L98 ANSWER 15 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:64837 HCAPLUS

DN 132:234729

TI Different **bone** growth rates are associated with changes in the expression pattern of types II and X collagens and **collagenase** 3 in proximal growth plates of the rat tibia

AU Alvarez, Jesus; Balbin, Milagros; Santos, Fernando; Fernandez, Marta; Ferrando, Susana; Lopez, Jose M.

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SO Journal of Bone and Mineral Research (2000), 15(1), 82-94
CODEN: JBMREJ; ISSN: 0884-0431

PB American Society for Bone and Mineral Research

DT Journal

LA English

CC 13-3 (Mammalian Biochemistry)

AB Skeletal growth depends on endochondral ossification in growth plate **cartilage**, where proliferation of chondrocytes, matrix synthesis, and increases in chondrocyte size all contribute to the final length of a **bone**. To learn more about the potential role of matrix synthesis/degrdn. dynamics in the detn. of **bone** growth rate, we

- investigated the expression of matrix collagens and **collagenase 3** in tibial growth plates in three age groups of rats (21, 35, and 80 days after birth), each characterized by specific growth rates. By combining stereol. and in situ hybridization techniques, it was found that the expression of matrix collagens and **collagenase 3** was specifically turned on or off at specific stages of the chondrocyte-differentiation cycle, and these changes occurred as a temporal sequence that varied depending on animal growth rate. Furthermore, the expression of these matrix proteins by a growth plate chondrocyte was found to be sped up or slowed down depending on the growth rate. In addn. to expression of types II and X collagen, **collagenase-3** expression was found to constitute a const. event in the series of changes in gene expression that takes place during the chondrocyte-differentiation process. **Collagenase-3** expression was found to show a biphasic pattern: it was intermittently expressed at the proliferative phase and uniformly expressed at the hypertrophic stage. An intimate relationship between morphol. and kinetic changes assocd. with chondrocyte hypertrophy and changes in the expression pattern of matrix collagens and **collagenase 3** was obsd. The present data prove that the matrix synthesis/degrdn. dynamics of the growth plate **cartilage** varied depending on growth rate; these results support the hypothesis that changes in matrix degrdn. and synthesis are a crit. link in the sequence of tightly regulated events that lead to chondrocytic differentiation.
- ST **bone** growth chondrocyte differentiation proliferation collagen **collagenase 3** expression; **cartilage** extracellular matrix **bone** growth plate expression collagen **collagenase**
- IT Hypertrophy
(chondrocyte; different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT Gene, animal
mRNA
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(collagens and **collagenase 3**; different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT **Cartilage**
Cell differentiation
Cell proliferation
Chondrocyte
Extracellular matrix
(different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT **Bone**
(growth plate; different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT **Bone** formation
(rate; different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT Collagens, biological studies
RL: BOC (**Biological occurrence**); BSU (Biological study,

unclassified); BIOL (Biological study); OCCU (Occurrence)
(type II; different **bone** growth rates and stages of
chondrocyte differentiation cycle are assocd. with changes in
expression pattern of types II and X collagens and **collagenase**
3 in proximal growth plates of rat tibia)

IT Collagens, biological studies
RL: BOC (Biological occurrence); BSU (Biological study,
unclassified); BIOL (Biological study); OCCU (Occurrence)
(type X; different **bone** growth rates and stages of
chondrocyte differentiation cycle are assocd. with changes in
expression pattern of types II and X collagens and **collagenase**
3 in proximal growth plates of rat tibia)

IT 175449-82-8, **Collagenase 3**
RL: BOC (Biological occurrence); BSU (Biological study,
unclassified); BIOL (Biological study); OCCU (Occurrence)
(different **bone** growth rates and stages of chondrocyte
differentiation cycle are assocd. with changes in expression pattern of
types II and X collagens and **collagenase 3** in
proximal growth plates of rat tibia)

RE.CNT 67 THERE ARE 67 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Apte, S; Eur J Biochem 1992, V206, P217 HCAPLUS
- (2) Balbin, M; J Endocrinol 1996, V149, P405 HCAPLUS
- (3) Bianco, P; Matrix Biol 1998, V17, P185 HCAPLUS
- (4) Birkedal-Hansen, H; Curr Opin Cell Biol 1995, V7, P728 HCAPLUS
- (5) Blair, H; Connect Tissue Res 1989, V23, P65 MEDLINE
- (6) Bord, S; Bone 1998, V23, P7 HCAPLUS
- (7) Braissant, O; Biochemica 1998, V1, P10
- (8) Breur, G; Anat Rec 1994, V239, P255 MEDLINE
- (9) Breur, G; Calcif Tissue Int 1997, V61, P418 HCAPLUS
- (10) Breur, G; J Bone Joint Surg Am 1992, V74, P516 MEDLINE
- (11) Breur, G; J Orthopaed Res 1991, V9, P348 MEDLINE
- (12) Brown, C; J Bone Joint Surg 1989, V71, P580 MEDLINE
- (13) Cancedda, R; Int Rev Cytol 1995, V159, P265 MEDLINE
- (14) Cao, J; J Biol Chem 1996, V271, P30174
- (15) Cowell, S; Biochem J 1998, V351, P453
- (16) Cruz-Orive, L; J Microsc 1986, V143, P47
- (17) Dean, D; Matrix 1989, V9, P366 MEDLINE
- (18) Everts, V; J Bone Miner Res 1998, V13, P1420 HCAPLUS
- (19) Eyre, D; Structure and function of collagen types 1987, P261
- (20) Farnum, C; Calcified Tissue Int 1993, V52, P110 MEDLINE
- (21) Farquharson, C; Bone Miner 1990, V10, P121 HCAPLUS
- (22) Fosang, A; FEBS Lett 1996, V380, P17 HCAPLUS
- (23) Freijs, J; J Biol Chem 1994, V269, P16766 HCAPLUS
- (24) Fridman, R; Cancer Res 1995, V55, P2548 HCAPLUS
- (25) Gack, S; Cell Growth Differ 1995, V6, P759 HCAPLUS
- (26) Hansson, L; Calcif Tissue Res 1972, V10, P238 MEDLINE
- (27) Hirsch, M; Dev Dyn 1997, V210, P249 HCAPLUS
- (28) Hunziker, E; J Clin Invest 1994, V93, P1078 HCAPLUS
- (29) Hunziker, E; J Physiol 1989, V414, P55 MEDLINE
- (30) Hunziker, E; Microsc Res Techniq 1994, V28, P505 MEDLINE
- (31) Itoh, T; J Biol Chem 1997, V272, P22389 HCAPLUS
- (32) Iwamoto, M; Exp Cell Res 1993, V205, P153
- (33) Johansson, N; Dev Dyn 1997, V208, P387 HCAPLUS
- (34) Jones, J; Endocr Rev 1995, V16, P3 HCAPLUS
- (35) Kawashima-Ohya, Y; Endocrinology 1998, V139, P2120 HCAPLUS
- (36) Knauper, V; Eur J Biochem 1997, V248, P369 HCAPLUS
- (37) Knauper, V; J Biol Chem 1996, V271, P1544 HCAPLUS
- (38) Knauper, V; J Biol Chem 1996, V271, P17124 MEDLINE
- (39) Knauper, V; J Biol Chem 1997, V272, P7608 HCAPLUS
- (40) Lanske, B; Endocrinology 1998, V139, P5194 HCAPLUS
- (41) Lehti, K; Biochem J 1998, V334, P345 HCAPLUS
- (42) Mattot, V; J Cell Sci 1995, V108, P529 HCAPLUS

- (43) Meikle, M; Bone 1995, V17, P255 HCAPLUS
- (44) Metsaranta, M; J Biol Chem 1991, V266, P16862 HCAPLUS
- (45) Mitchell, P; J Clin Invest 1996, V7, P761
- (46) Oettinger, H; Exp Cell Res 1990, V191, P292 HCAPLUS
- (47) Ohlsson, C; Acta Paediatr 1993, V391(Suppl), P33
- (48) O'Keefe, R; J Orthop Res 1997, V15, P162 HCAPLUS
- (49) Pei, D; J Biol Chem 1996, V271, P9135 HCAPLUS
- (50) Poole, A; Cartilage: molecular aspects 1991, P179
- (51) Reponen, P; J Cell Biol 1994, V124, P1091 HCAPLUS
- (52) Riminucci, M; J Bone Miner Res 1998, V13, P1852 MEDLINE
- (53) Sandell, L; J Orthopaed Res 1994, V12, P1 HCAPLUS
- (54) Sandell, L; Trans Orthop Res Soc 1989, V14, P280
- (55) Sato, T; J Cell Sci 1997, V110, P589 HCAPLUS
- (56) Sires, U; J Clin Invest 1995, V95, P2089 HCAPLUS
- (57) Stahle-Backdahl, M; Lab Invest 1997, V76, P717 MEDLINE
- (58) Stevenson, S; J Orthopaed Res 1990, V8, P132 MEDLINE
- (59) Suda, T; Endocr Rev 1992, V13, P66 MEDLINE
- (60) Suttmuller, M; Histol Histopathol 1997, V12, P557 HCAPLUS
- (61) Thrailkill, K; Endocrinology 1995, V136, P3527 HCAPLUS
- (62) Vanky, P; Bone 1998, V22, P331 MEDLINE
- (63) Vu, T; Cell 1998, V93, P411 HCAPLUS
- (64) Welgus, H; J Biol Chem 1990, V265, P13521 HCAPLUS
- (65) Whitelock, J; J Biol Chem 1996, V271, P10079 HCAPLUS
- (66) Wilsman, N; J Orthopaed Res 1996, V14, P927 MEDLINE
- (67) Wu, L; J Cell Biochem 1997, V65, P209 HCAPLUS

L98 ANSWER 16 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:54486 HCAPLUS

DN 132:292213

TI Expression of matrix **metalloproteinases** in normal and damaged articular **cartilage** from human knee and ankle **joints**

AU Chubinskaya, Susan; Kuettner, Klaus Eduard; Cole, Ada Asbury
CS Departments of Biochemistry, Rush-Presbyterian-St. Luke's Medical Center, Rush Medical College, Chicago, IL, 60612, USA

SO Laboratory Investigation (1999), 79(12), 1669-1677
CODEN: LAINAW; ISSN: 0023-6837

PB Lippincott Williams & Wilkins

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB The objectives of this study were the following: (a) describe the appearance of histopathol. changes obsd. in human articular **cartilage** from the knee and ankle **joints** of organ donors with no symptomatic **joint** disease; (b) compare by in situ hybridization **mRNA** expression of six matrix **metalloproteinases (MMP)** in these **cartilages**; (c) compare **MMP mRNA** expression with the histol. of the **cartilage**; and (d) test whether the effect of interleukin-1.beta. (IL-1.beta.) on the **MMP mRNA** expression could be detected with in situ hybridization. Human articular **cartilages** from the knee (tibiofemoral) and ankle (talocrural) **joints** of 41 different donors (aged 18 to 84 yr) were obtained through the Regional Organ Bank of Illinois. The microscopic appearance of the **cartilages** was graded on a histopathol. scale from 0 to 13 with the highest grade representing severely damaged **cartilage**. In situ hybridization was performed using oligonucleotide probes to three collagenases (**MMP-1, MMP-8, MMP-13**), gelatinase A (**MMP-2**), stromelysin (**MMP-3**), and matrix type-1 **metalloproteinase (MMP-14)**. **Cartilages** from some donors were cultured with IL-1.beta. and then analyzed for **MMP** expression using in situ hybridization. The histopathol. grades of the **cartilages** from the asymptomatic donors covered

the entire scale even in the ankle. Based on their grades, the **cartilages** were described as either normal (grades 0 to 5) or damaged (grades 6 to 13). The **cartilages** contained message for all six **MMP** tested with no detectable differences in expression of **MMP-1**, **-2**, **-13**, and **-14** between the normal and damaged **cartilages**. However the expression of **MMP-3** and **MMP-8** was elevated in the damaged **cartilages**. In normal knee **cartilage**, **mRNA** expression of **MMP-3** and **MMP-8** was low, whereas in normal ankle **cartilage**, **MMP-8** expression was below the detection limit. **MMP-3** and **MMP-8** message was up-regulated in the damaged **cartilage** from both **joints**, or if the tissue was cultured in the presence of **IL-1.beta.**.. From this study we conclude the following: (a) similar histopathol. changes occur in both knee and ankle **cartilages**; (b) **MMP-1**, **-2**, **-13**, and **-14** are constitutively expressed in adult human **cartilage**; and (c) only up-regulation of **mRNA** expression of **MMP-3** and **MMP-8** could be detected with naturally occurring **cartilage** damage and **IL-1.beta.** induction.

- ST matrix metalloproteinase knee ankle cartilage damage
IL1beta
- IT Joint, anatomical
(ankle; matrix metalloproteinases and mRNAs expression in normal and damaged articular cartilage from human knee and ankle joints)
- IT Cartilage
(articular; matrix metalloproteinases and mRNAs expression in normal and damaged articular cartilage from human knee and ankle joints)
- IT Joint, anatomical
(knee; matrix metalloproteinases and mRNAs expression in normal and damaged articular cartilage from human knee and ankle joints)
- IT Osteoarthritis
(matrix metalloproteinases and mRNAs expression in normal and damaged articular cartilage from human knee and ankle joints)
- IT Interleukin 1.beta.
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(matrix metalloproteinases and mRNAs expression in normal and damaged articular cartilage from human knee and ankle joints)
- IT mRNA
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(matrix metalloproteinases and mRNAs expression in normal and damaged articular cartilage from human knee and ankle joints)
- IT Gene, animal
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(matrix metalloproteinases and mRNAs expression in normal and damaged articular cartilage from human knee and ankle joints)
- IT 9001-12-1, Matrix metalloproteinase-1
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(1 and 8; matrix metalloproteinases and mRNAs expression in normal and damaged articular cartilage from human knee and ankle joints)
- IT 79955-99-0, Matrix metalloproteinase-3 146480-35-5,
Matrix metalloproteinase-2 161384-17-4

, Matrix metalloproteinase-14 175449-82-8,

Matrix metalloproteinase-13

RL: BOC (Biological occurrence); BSU (Biological study,
unclassified); BIOL (Biological study); OCCU (Occurrence)
(matrix metalloproteinases and mRNAs expression in
normal and damaged articular cartilage from human knee and
ankle joints)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Aigner, T; Osteoarthritis Cartilage 1997, V5, P183 MEDLINE
- (2) Billingham, R; J Clin Invest 1997, V99, P1534 HCAPLUS
- (3) Buttner, F; Arthritis Rheum 1997, V40, P704 MEDLINE
- (4) Chubinskaya, S; Lab Invest 1996, V74, P232 HCAPLUS
- (5) Cole, A; Acta Scand Orthop 1995, V66, P98
- (6) Cole, A; J Biol Chem 1996, V271, P11023 HCAPLUS
- (7) Cushnaghan, J; Ann Rheum Dis 1991, V50, P8 MEDLINE
- (8) Dieppe, P; Br J Rheumatol 1994, V33, P201 MEDLINE
- (9) Freije, J; J Biol Chem 1994, V269, P16766 HCAPLUS
- (10) Glant, T; Am J Ther 1996, V3, P27
- (11) Goldberg, G; J Biol Chem 1986, V261, P6600 HCAPLUS
- (12) Hasty, K; Arthritis Rheum 1987, V30, P695 HCAPLUS
- (13) Hasty, K; J Biol Chem 1990, V265, P11421 HCAPLUS
- (14) Hasty, K; Matrix 1993, V13, P181 HCAPLUS
- (15) Hauselmann, H; J Bone Joint Surg 1993, V17, P710
- (16) Huch, K; Semin Arthritis Rheum 1997, V26, P667 MEDLINE
- (17) Huch, K; Trans Orthop Res Soc 1995, V20, P338
- (18) Kang, Y; J Orthop Res 1998, V16, P551 MEDLINE
- (19) Mankin, H; J Bone Joint Surg 1971, V53A, P523
- (20) Maroudas, A; Adult articular cartilage, second edition 1979, P215 HCAPLUS
- (21) Mohtai, M; J Clin Invest 1993, V92, P179 HCAPLUS
- (22) Moldovan, F; Arthritis Rheum 1997, V40, P1653 HCAPLUS
- (23) Nagase, H; Zinc metalloproteinases in health and disease 1996, P153 HCAPLUS
- (24) Nguyen, Q; J Clin Invest 1992, V89, P1189 HCAPLUS
- (25) Peyron, J; Osteoarthritis: Diagnosis and treatment 1984, P9
- (26) Rosenberg, L; J Bone Joint Surg 1971, V53A, P69
- (27) Sandell, L; J Cell Biol 1991, V114, P1307 HCAPLUS
- (28) Sato, H; Nature 1994, V370, P61 HCAPLUS
- (29) Shlopov, B; Arthritis Rheum 1997, V40, P2065 HCAPLUS
- (30) Tsuchiya, K; J Orthop Res 1997, V15, P94 MEDLINE
- (31) van Valburg, A; J Rheumatol 1997, V24, P358 MEDLINE
- (32) Wagenhauser, F; Die Rheumamorbidity 1969
- (33) Woessner, J; FASEB J 1991, V5, P2145 HCAPLUS

L98 ANSWER 17 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1999:809143 HCAPLUS

DN 133:15645

TI Analysis of 16 different matrix metalloproteinases (MMP
-1 to MMP-20) in the synovial membrane:

different profiles in trauma and rheumatoid arthritis

AU Konttinen, Yrjo; Ainola, Mia; Valleala, Heikki; Ma, Jian; Ida, Hideo;
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Lopez-Otin, Carlos; Takagi, Michiaki

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SO Annals of the Rheumatic Diseases (1999), 58(11), 691-697
CODEN: ARDIAO; ISSN: 0003-4967

PB BMJ Publishing Group

DT Journal

LA English

CC 14-2 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 7, 15

AB Objective-To define the pattern of mRNA expression of all human

November Issue

matrix metallo-proteinases (MMPs) described to date in **rheumatoid arthritis** (RA) and traumatic **synovial membrane**, in order to differentiate between a physiol. tissue remodelling pattern and that assocd. with inflammatory tissue destruction. Methods-Anal. of SwissProt protein and EMBL/GenBank nucleotide sequence banks, protein sequence alignment, reverse transcriptase-polymerase chain reaction and nucleotide sequencing were used. Results-MMP-2 (gelatinase A), MMP-3 (stromelysin-1), MMP-11 (stromelysin-3) and MMP-19 were constitutively expressed. MMP-1 (fibroblast type collagenase), MMP-9 (gelatinase B) and MMP-14 (MT1-MMP) were expressed in all RA, but only in 55-80% of trauma samples. MMP-13 (collagenase-3) and MMP-15 (MT2-MMP) were expressed exclusively in RA (80-90% of the samples). MMP-20 (enamelysin) was absent and MMP-8 (collagenase-2) was rarely found in RA or trauma. All other MMPs (-7, -10, -12, -16, -17) had an intermediate pattern of expression. Conclusions-Some MMPs without interstitial collagenase activity seem to have a constitutive pattern of expression and probably participate in physiol. **synovial** tissue remodelling. Some MMPs are exclusively assocd. to RA **synovitis**, for example, MMP-13, which preferentially degrades type II collagen and aggrecan, and MMP-15, which activates proMMP-2 and proMMP-13 and is involved in tumor necrosis factor .alpha. processing. This clear cut **rheumatoid/inflammatory MMP** profile, more complex than has been previously appreciated, may facilitate inflammatory tissue destruction in RA.

- ST **MMP synovial membrane inflammation**
rheumatoid arthritis trauma
- IT Injury
(destruction; matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT Inflammation
Rheumatoid arthritis
(matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT **mRNA**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT **Synovial membrane**
(**synovitis**; matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT Injury
(trauma; matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 140610-48-6, Stromelysin-2
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(MMP-10; matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 145267-01-2, Stromelysin-3
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(MMP-11; matrix metalloproteinases in relation to

- tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 9004-06-2, Macrophage metalloelastase
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(**MMP-12**; matrix **metalloproteinases** in relation to
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 175449-82-8, Collagenase-3
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(**MMP-13**; matrix **metalloproteinases** in
relation to tissue destruction and inflammation in human with
rheumatoid arthritis and trauma)
- IT 161384-17-4, MT1-MMP
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(**MMP-14**; matrix **metalloproteinases** in relation to
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 172308-17-7, MT2-MMP
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(**MMP-15**; matrix **metalloproteinases** in relation to
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 203810-08-6, MT4-MMP
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(**MMP-17**; matrix **metalloproteinases** in relation to
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 185766-51-2, Enamelysin
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(**MMP-20**; matrix **metalloproteinases** in relation to
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 141256-52-2, Matrilysin
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(**MMP-7**; matrix **metalloproteinases** in relation to
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 146480-36-6, Gelatinase B
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(**MMP-9**; matrix **metalloproteinases** in relation to
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 9001-12-1, **MMP-1** 79955-99-0, **MMP-3**
146480-35-5, **MMP 2** 188364-80-9, Matrix
metalloproteinase-19 208349-51-3
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
BIOL (Biological study); OCCU (Occurrence)
(matrix **metalloproteinases** in relation to tissue destruction
and inflammation in human with **rheumatoid arthritis**
and trauma)

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Aimes, R; J Biol Chem 1995, V270, P5872 HCAPLUS
- (2) Arnett, F; Arthritis Rheum 1988, V31, P315 MEDLINE
- (3) Case, J; Am J Pathol 1989, V135, P1055 HCAPLUS

- (4) Chatham, W; Arthritis Rheum 1990, V33, P1333 MEDLINE
- (5) Cole, A; J Biol Chem 1996, V271, P11023 HCAPLUS
- (6) Cossins, J; Biochem Biophys Res Commun 1996, V228, P494 HCAPLUS
- (7) d'Ortho, M; Eur J Biochem 1997, V250, P751 HCAPLUS
- (8) Evanson, J; Science 1967, V158, P499 HCAPLUS
- (9) Feng, D; J Mol Evol 1987, V25, P351 HCAPLUS
- (10) Firestein, G; Arthritis Rheum 1994, V37, P193 MEDLINE
- (11) Hanemaaijer, R; J Biol Chem 1997, V272, P31504 HCAPLUS
- (12) Higgins, D; Comp Appl Biosci 1989, V5, P151 HCAPLUS
- (13) Imai, K; Am J Pathol 1997, V151, P245 HCAPLUS
- (14) Imai, S; J Bone Joint Surg 1998, V80B, P701
- (15) Innis, M; PCR protocols: a guide to methods and applications 1990
- (16) Kolkenbrock, H; Biol Chem 1997, V378, P71 HCAPLUS
- (17) Konttinen, Y; Ann Rheum Dis 1985, V44, P549 MEDLINE
- (18) Konttinen, Y; Matrix 1991, V11, P296 MEDLINE
- (19) Konttinen, Y; Matrix Biol 1998, V17, P585 HCAPLUS
- (20) Kristo, P; Eur J Biochem 1996, V237, P240 HCAPLUS
- (21) Lindy, O; Arthritis Rheum 1997, V40, P1391 HCAPLUS
- (22) Llano, E; Biochemistry 1997, V36, P15101 HCAPLUS
- (23) Lohi, I; J Invest Dermatol 1994, V102, P938
- (24) Makino, Y; Mol Pharmacol 1994, V46, P1084 HCAPLUS
- (25) Okada, Y; Ann Rheum Dis 1989, V48, P645 MEDLINE
- (26) Pendas, A; Genomics 1997, V40, P222 HCAPLUS
- (27) Pendas, A; J Biol Chem 1997, V272, P4281 HCAPLUS
- (28) Springman, E; Proc Natl Acad Sci USA 1990, V87, P364 HCAPLUS
- (29) Stelow, M; Mol Biol Cell 1996, V7, P1471 HCAPLUS
- (30) Strongin, A; J Biol Chem 1995, V270, P5331 HCAPLUS
- (31) Tardif, G; Biochem J 1997, V323, P13 HCAPLUS
- (32) Uria, J; Cancer Res 1997, V57, P4882 HCAPLUS

L98 ANSWER 18 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1999:476256 HCAPLUS

DN 131:270444

TI Characterization of **collagenase 3 (matrix metalloproteinase 13)** messenger RNA expression in the **synovial membrane** and **synovial fibroblasts** of patients with **rheumatoid arthritis**

AU **Westhoff, Claudia Schulze; Freudiger, Dirk; Petrow, Peter; Seyfert, Christine; Zacher, Josef; Kriegsmann, Jorg; Pap, Thomas; Gay, Steffen; Stiehl, Peter; Gromnica-Ihle, Erika; Wernicke, Dirk**

} Diff.
inv. entity

CS Max-Delbruck-Center for Molecular Medicine, Berlin, 13 092, Germany

SO Arthritis & Rheumatism (1999), 42(7), 1517-1527

CODEN: ARHEAW; ISSN: 0004-3591

PB Lippincott Williams & Wilkins

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 3

AB To study the localization and cell type-specific expression of **collagenase 3 mRNA (mRNA)** in the **synovial membrane**, its regulation in primary **synovial fibroblasts**, and the correlation with systemic **markers** of inflammation and radiog. damage in **rheumatoid arthritis (RA)**. The expression of **collagenase 3 mRNA** was characterized by Northern blot anal., reverse transcriptase-polymerase chain reaction, and in situ hybridization. Immunohistochem. detection of cell type-specific **antigens** was used in combination with in situ hybridization of **collagenase 3 mRNA** to characterize the cellular origin of **collagenase 3 mRNA** expression. **Collagenase 3 mRNA** was detected in **synovial membrane** specimens of 21 of 36 RA patients

(58%) and correlated with an increase in erythrocyte sedimentation rate ($P < 0.05$) and C-reactive protein levels ($P < 0.005$). **Collagenase 3 mRNA** was localized in fibroblast-like cells of the lining and sublining layers, and at the **synovial membrane-cartilage** interface. Four of 10 primary **synovial fibroblast** cell cultures showed basal expression of **collagenase 3 mRNA**, which was stimulated 2-4-fold upon interleukin-1.β. or tumor necrosis factor .α. treatment and, in contrast to interstitial **collagenase mRNA**, 5-10-fold by increasing the intracellular level of cAMP. The stimulation by cAMP analogs was completely abolished by protein kinase A inhibitors. Some RA patients show **collagenase 3 mRNA** expression in the **synovial membrane**, which correlates with elevated levels of systemic **markers** of inflammation in these patients. In **synovial fibroblasts**, the expression of **collagenase 3** and interstitial **collagenase mRNA** is differentially regulated by distinct protein kinase signal transduction pathways.

- ST **collagenase 3 mRNA synovium**
 membrane fibroblast rheumatoid arthritis
- IT Proteins, specific or class
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
 (C-reactive; collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Cartilage**
 (articular; collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Rheumatoid arthritis**
 Signal transduction, biological
Synovial membrane
 (collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **mRNA**
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
 (collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Gene, animal**
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
 (collagenase 3; collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Gene**
 (expression; collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Gene, animal**
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)

- (interstitial collagenase; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT Erythrocyte
(sedimentation rate; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT Fibroblast
(synovial; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT 175449-82-8, Collagenase 3
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT 9001-12-1, Collagenase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(interstitial; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT 9026-43-1, Protein kinase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(signal transduction pathways; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)

RE.CNT 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Airola, K; J Invest Dermatol 1997, V109, P225 MEDLINE
- (2) Arnett, F; Arthritis Rheum 1988, V31, P315 MEDLINE
- (3) Billingham, R; J Clin Invest 1997, V99, P1534 HCAPLUS
- (4) Birkedal, H; Curr Opin Cell Biol 1995, V7, P728
- (5) Borden, P; J Biol Chem 1996, V271, P23577 HCAPLUS
- (6) Breedveld, F; J Rheumatol 1987, V14, P1008 MEDLINE
- (7) Case, J; J Immunol 1990, V145, P3755 HCAPLUS
- (8) Cawston, T; Mol Med Today 1998, V4, P130 HCAPLUS
- (9) Cheung, N; Arthritis Rheum 1996, V39, P884 MEDLINE
- (10) Cowell, S; Biochem J 1998, V331, P453 HCAPLUS
- (11) DiBattista, J; Lab Invest 1994, V71, P270 HCAPLUS
- (12) Emery, P; Ann Rheum Dis 1995, V54, P944 MEDLINE
- (13) Fini, M; Matrix metalloproteinases 1998, P300
- (14) Firestein, G; Rheumatology 1994, P3.12.1
- (15) Fosang, A; FEBS Lett 1996, V380, P17 HCAPLUS
- (16) Freijs, J; J Biol Chem 1994, V269, P16766 HCAPLUS
- (17) Gay, S; Ann Rheum Dis 1993, V52(Suppl 1), P339
- (18) Gay, S; Methods Enzymol 1987, V145, P148 HCAPLUS
- (19) Gearing, A; Nature 1994, V370, P555 HCAPLUS
- (20) Gravalles, E; Arthritis Rheum 1991, V34, P1076 MEDLINE
- (21) Gruber, B; Clin Immunol Immunopathol 1996, V78, P161 MEDLINE
- (22) Hanemaaijer, R; J Biol Chem 1997, V272, P31504 HCAPLUS
- (23) Hembry, R; Ann Rheum Dis 1995, V54, P25 MEDLINE
- (24) Ishiguro, N; J Rheumatol 1996, V23, P1599 MEDLINE
- (25) Ito, A; J Biol Chem 1996, V271, P14657 HCAPLUS
- (26) Johansson, N; Am J Pathol 1997, V151, P499 HCAPLUS
- (27) Johansson, N; Dev Dyn 1997, V208, P387 HCAPLUS
- (28) Knauper, V; J Biol Chem 1996, V271, P1544 HCAPLUS
- (29) Knauper, V; J Biol Chem 1997, V272, P7608 HCAPLUS
- (30) Kozaci, L; Arthritis Rheum 1997, V40, P164 HCAPLUS

- (31) Kriegsmann, J; Lab Invest 1994, V71, P911 HCAPLUS
- (32) Larsen, A; Acta Radiol 1977, V18, P481 MEDLINE
- (33) Lindy, O; Arthritis Rheum 1997, V40, P1391 HCAPLUS
- (34) MacNaul, K; J Biol Chem 1990, V265, P17238 HCAPLUS
- (35) Manicourt, D; Arthritis Rheum 1995, V38, P1031 HCAPLUS
- (36) Martel Pelletier, J; Lab Invest 1994, V70, P807 HCAPLUS
- (37) Mitchell, P; J Clin Invest 1996, V97, P761 HCAPLUS
- (38) Moldovan, F; Arthritis Rheum 1997, V40, P1653 HCAPLUS
- (39) Nagase, H; Biol Chem 1997, V378, P151 HCAPLUS
- (40) Pendas, A; Genomics 1997, V40, P222 HCAPLUS
- (41) Pincus, T; Br J Rheumatol 1995, V34(Suppl 2), P59
- (42) Reboul, P; J Clin Invest 1996, V97, P2011 HCAPLUS
- (43) Stahle-Backdahl, M; Lab Invest 1997, V76, P717 MEDLINE
- (44) Stiehl, P; Lengerich (Germany) 1997, P188
- (45) Tardif, G; Biochem J 1997, V323, P13 HCAPLUS
- (46) Tetlow, L; Br J Rheumatol 1998, V37, P64 HCAPLUS
- (47) Tetlow, L; Rheumatol Int 1993, V13, P53 HCAPLUS
- (48) Uria, J; Cancer Res 1997, V57, P4882 HCAPLUS
- (49) Vaalamo, M; J Invest Dermatol 1997, V109, P96 MEDLINE
- (50) Van den Berg, W; Rheumatol Eur 1995, V24(Suppl), P161
- (51) Vincenti, M; Crit Rev Eukaryot Gene Expr 1996, V6, P391 HCAPLUS
- (52) Walakovits, L; Arthritis Rheum 1992, V35, P35 MEDLINE
- (53) Werb, Z; Textbook of rheumatology 1993, P248
- (54) Wernicke, D; J Rheumatol 1996, V23, P590 HCAPLUS
- (55) Wolfe, F; Arthritis Rheum 1998, V41, P1571 MEDLINE
- (56) Wolfe, G; Arthritis Rheum 1993, V36, P1540 HCAPLUS
- (57) Yoshihara, Y; Arthritis Rheum 1995, V38, P969 MEDLINE
- (58) Zvaifler, N; Arthritis Rheum 1994, V37, P783 HCAPLUS

L98 ANSWER 19 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1998:330087 HCAPLUS

DN 129:107553

TI **Collagenase 1 and collagenase 3 expression**
in a guinea pig model of **osteoarthritis**

AU Huebner, Janet L.; Otterness, Ivan G.; Freund, Edward M.; Caterson, Bruce;
Kraus, Virginia B.

CS Duke University Medical Center, Durham, NC, 27710, USA

SO Arthritis & Rheumatism (1998), 41(5), 877-890

CODEN: ARHEAW; ISSN: 0004-3591

PB Lippincott-Raven Publishers

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB The purpose of this study was to analyze the in vivo compartmental expression of **collagenases** 1 and 3 (**MMP-1** and **MMP-13**) in the Hartley guinea pig model of spontaneously occurring **osteoarthritis** (OA) for the purpose of elucidating their roles in the pathogenesis of OA. Competitive reverse transcription-polymerase chain reaction (RT-PCR) and immunohistochem. quantification of **mRNA** and protein levels in medial and lateral tibial **cartilage** obtained from the knee joints of 2-mo-old (no OA) and 12-mo-old (OA) guinea pigs. The patterns of **mRNA** expression of **collagenases** 1 and 3 varied with the age of the animal and the compartment of the knee. The authors also found focal areas of **collagenase 1** and **collagenase 3** proteins localized to the extracellular matrix of OA lesion sites, coincident with three-quarter/one-quarter collagen cleavage. **Collagenase 3** protein was also abundant throughout the medial tibial **cartilage** of 2-mo-old animals. This represents the first description of bona fide **collagenase 1** in a rodent species. Recent evidence, however, based on anal. of mitochondrial DNA homologies, suggests that the guinea pig is not a member of the order Rodentia and may be more closely allied with lagomorphs. This taxonomic

controversy leaves open to question the issue of the expression of **collagenase 1** in other rodents, such as mice and rats. The presence of active **collagenases 1** and **3** at OA lesion sites is consistent with an important role of these enzymes in the **cartilage** degrdn. of OA in guinea pigs. The expression of **collagenase 3** in medial tibial **cartilage** from 2-mo-old guinea pigs may signify a role of this enzyme in **cartilage** remodeling with growth and development, or it may represent an early mol. manifestation of OA.

ST **collagenase** gene expression **osteoarthritis**

IT Disease models

Guinea pig (*Cavia porcellus*)

Osteoarthritis

(**collagenase 1** and **collagenase 3** gene

expression in a guinea pig model of **osteoarthritis**)

IT **mRNA**

RL: BOC (**Biological occurrence**); BPR (**Biological process**); BSU (**Biological study, unclassified**); BIOL (**Biological study**); OCCU (**Occurrence**); PROC (**Process**)

(**collagenase 1** and **collagenase 3** gene

expression in a guinea pig model of **osteoarthritis**)

IT Gene

(expression; **collagenase 1** and **collagenase**

3 gene expression in a guinea pig model of **osteoarthritis**)

IT Joint, anatomical

(knee; **collagenase 1** and **collagenase 3**

gene expression in a guinea pig model of **osteoarthritis**)

IT 9001-12-1, **Collagenase 175449-82-8**,

Collagenase 3

RL: BOC (**Biological occurrence**); BPR (**Biological process**); BSU (**Biological study, unclassified**); BIOL (**Biological study**); OCCU (**Occurrence**); PROC (**Process**)

(**collagenase 1** and **collagenase 3** gene

expression in a guinea pig model of **osteoarthritis**)

L98 ANSWER 20 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:768335 HCAPLUS

DN 128:33306

TI **Osteoarthritic** lesions: involvement of three different **collagenases**

AU Shlopov, Boris V.; Lie, Wen-Rong; Mainardi, Carlo L.; Cole, Ada A.; Chubinskaya, Susan; Hasty, Karen A.

CS University of Tennessee, Memphis, USA

SO Arthritis & Rheumatism (1997), 40(11), 2065-2074

CODEN: ARHEAW; ISSN: 0004-3591

PB Lippincott-Raven

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB The authors assessed the presence of fibroblast **collagenase** (**MMP-1**), neutrophil **collagenase** (**MMP-8**), and **collagenase 3** (**MMP-13**) in

osteoarthritic (OA) **cartilage**, with particular emphasis

on areas of macroscopic **cartilage** erosion. Levels of **mRNA** were assessed by reverse transcriptase-polymerase chain reaction (RT-PCR), in situ hybridization, and Northern blot anal.

MMP-1 and **MMP-13** were expressed at higher

levels by OA chondrocytes than by normal chondrocytes. In addn.,

mRNA for **MMP-8** was present in OA **cartilage** but

not normal **cartilage** by PCR and Northern blot analyses.

Chondrocytes from areas surrounding the OA lesion expressed greater quantities of **MMP-1** and **MMP-13** compared with

normal chondrocytes, suggesting local modulation by mech. and inflammatory factors. Tumor necrosis factor .alpha. stimulated the expression of all 3 **collagenases**. Retinoic acid, an agent which induces autodigestion of **cartilage** in vitro, stimulated only the expression of **MMP-13**. These findings suggest a key role of **MMP-13** and **MMP-8**, as well as **MMP-1** in **osteoarthritis**.

- ST **osteoarthritis cartilage matrix metalloproteinase; collagenase cartilage osteoarthritis**
- IT **Cartilage**
(articular; involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT **mRNA**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(for matrix **metalloproteinase** 1, 8 and 13; involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT **Chondrocyte Osteoarthritis**
(involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT Interleukin 1.beta.
Tumor necrosis factors
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT 9001-12-1, Matrix **metalloproteinase** 1
RL: ADV (Adverse effect, including toxicity); BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(1 and 2; involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT 175449-82-8, Matrix **metalloproteinase** 13
RL: ADV (Adverse effect, including toxicity); BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT 302-79-4, Retinoic acid
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(involvement of three different **collagenases** in human **osteoarthritic** lesions)
- L98 ANSWER 21 OF 28 HCAPLUS COPYRIGHT 2002 ACS
- AN 1997:360321 HCAPLUS
- DN 127:79120
- TI **Collagenase-3 (MMP-13)** is expressed during human fetal ossification and re-expressed in postnatal **bone remodeling** and in **rheumatoid arthritis**
- AU Stahle-Baeckdahl, Mona; Sandstedt, Bengt; Bruce, Kerstin; Lindahl, Anders; Jimenez, Maria G.; Vega, Jose A.; Lopez-Otin, Carlos
- CS Department of Dermatology, Karolinska Hospital, Stockholm, S-171 76, Swed.
- SO Laboratory Investigation (1997), 76(5), 717-728
CODEN: LAINAW; ISSN: 0023-6837
- PB Williams & Wilkins
- DT Journal
- LA English
- CC 13-3 (Mammalian Biochemistry)

Section cross-reference(s): 14

- AB To explore possible physiol. functions for the **metalloproteinase collagenase-3**, we have examd. its temporal and spatial expression during human fetal development. Except for mesenchymal cells in the umbilical cord at 4 wk of gestation, signal for **collagenase-3 mRNA** was confined to mineralizing skeletal tissue and detected in hypertrophic chondrocytes and **osteoblastic** cells involved in ossification beginning at 10 wk and continuing through gestation. These cells were also immunoreactive with **collagenase-3** antiserum, indicating their ability to produce **collagenase-3** protein. In **osteoblastic** cells, the expression of **membrane-type 1 metalloproteinase** and 75-kd **gelatinase mRNA**, which have the capacity to activate **collagenase-3** in vitro, colocalized with that of **collagenase-3**. In postnatal tissues, **collagenase-3** was re-expressed in processes involving skeletal remodeling, such as **bone** cysts and ectopic **bone** and **cartilage** formation. Multinucleated **osteoclasts** were consistently neg. for **collagenase-3**. Furthermore, in patients with seropos. **rheumatoid arthritis**, expression of **collagenase-3** was prominent in articular **cartilage**, and **collagenase-3** protein was detected by immunoblotting in **synovial fluids**. Consistent with its substrate specificities, a plausible function for **collagenase-3** in these processes is to preferentially degrade type II collagen, thus serving a role during primary ossification, in skeletal remodeling, and in destructive joint disease.
- ST **metalloproteinase collagenase 3** ossification fetus; **collagenase 3** **rheumatoid arthritis** bone remodeling; **gelatinase**
A MT1MMP **collagenase 3** **osteoblast**
- IT **Cartilage**
(**articular**; **collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT **Chondrocyte**
Osteoblast
Rheumatoid arthritis
(**collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT **Embryo, animal**
(fetus; **collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT **Bone formation**
(mineralization; **collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT **175449-82-8, Collagenase 3**
RL: BOC (**Biological occurrence**); BSU (**Biological study**, unclassified); BIOL (**Biological study**); OCCU (**Occurrence**)
(**collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT **146480-35-5, 72,000-Mol.-wt. gelatinase**
161384-17-4, Membrane-type 1-matrix metalloproteinase
RL: BOC (**Biological occurrence**); BSU (**Biological study**, unclassified); BIOL (**Biological study**); OCCU (**Occurrence**)
(**collagenase-3** is expressed during human fetal

ossification and re-expressed in postnatal **bone** remodeling
and in **rheumatoid arthritis** in relation to)

L98 ANSWER 22 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:225961 HCAPLUS

DN 126:236562

TI **Collagenase-3 (MMP-13)** is
expressed by hypertrophic chondrocytes, periosteal cells, and
osteoblasts during human fetal **bone** development
AU Johansson, Nina; Saarialho-Kere, Ulpu; Airola, Kristiina; Herva, Riitta;
Nissinen, Liisa; Westermarck, Jukka; Vuorio, Eero; Heino, Jyrki; Kahari,
Veli-Matti

CS Department of Dermatology, Turku University Central Hospital, and
University of Turku, Turku, FIN-20520, Finland

SO Developmental Dynamics (1997), 208(3), 387-397
CODEN: DEDYEI; ISSN: 1058-8388

PB Wiley-Liss

DT Journal

LA English

CC 13-3 (Mammalian Biochemistry)

AB **Collagenase-3 (MMP-13)** is a novel
matrix **metalloproteinase**, the expression of which has so far
only been documented in human breast carcinomas and **osteoarthritic**
cartilage. Here, the authors examd. the expression of **MMP**
-13 during human fetal development. Northern blot
hybridizations revealed abundant expression of **MMP-13**
mRNAs in total **RNA** from fetal **cartilage** and
calvaria at a gestational age of 15 wk. By in situ hybridization,
MMP-13 transcripts were detected in chondrocytes of
hypertrophic **cartilage** in vertebrae of the spinal column and in
the dorsal end of ribs undergoing ossification, as well as in
osteoblasts and periosteal cells below the inner periosteal region
of ossified ribs. In contrast, no expression of **MMP-13**
could be detected in **osteoclasts**. Furthermore, expression of
MMP-13 mRNA was detected in
osteoblasts and fibroblasts primarily on the inner side of
calvarial **bone** of the skull at 16 wk of gestation. Expression
of **MMP-13 mRNA** by primary human fetal
chondrocytes in culture was enhanced by transforming growth factor-.beta.
(TGF-.beta.) and inhibited by **bone** morphogenetic protein-2
(BMP-2). No expression of **MMP-13 mRNA** could
be noted in other fetal tissues, including the skin, lungs, neural tissue,
muscle, and liver. These results suggest that **MMP-13**
plays an important role in the extracellular matrix remodeling during
fetal **bone** development both via endochondral and intramembranous
ossification.

ST **collagenase 3** expression **bone** development
fetus

IT **Bone**

Chondrocyte

Osteoblast

(**collagenase 3** is expressed by hypertrophic
chondrocytes, periosteal cells, and **osteoblasts** during human
fetal **bone** development)

IT Embryo, animal

(fetus; **collagenase 3** is expressed by hypertrophic
chondrocytes, periosteal cells, and **osteoblasts** during human
fetal **bone** development)

IT **mRNA**

RL: BOC (**Biological occurrence**); BSU (**Biological study**,
unclassified); BIOL (**Biological study**); OCCU (**Occurrence**)

(for **collagenase 3**; **collagenase 3**

is expressed by hypertrophic chondrocytes, periosteal cells, and

- osteoblasts** during human fetal **bone** development)
- IT **Bone**
(periosteum; **collagenase 3** is expressed by hypertrophic chondrocytes, periosteal cells, and **osteoblasts** during human fetal **bone** development)
- IT **175449-82-8, Collagenase 3**
RL: **BOC (Biological occurrence)**; BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)
(**collagenase 3** is expressed by hypertrophic chondrocytes, periosteal cells, and **osteoblasts** during human fetal **bone** development)
- L98 ANSWER 23 OF 28 HCAPLUS COPYRIGHT 2002 ACS
AN **1997:187408 HCAPLUS**
DN **126:259888**
TI Structural analysis and promoter characterization of the human **collagenase-3** gene (**MMP13**)
AU Pendas, Alberto M.; Balbin, Milagros; Llano, Elena; Jimenez, Maria G.; Lopez-Otin, Carlos
CS Fac. Medicina, Univ. Oviedo, Oviedo, 33006, Spain
SO Genomics (1997), 40(2), 222-233
CODEN: GNMCEP; ISSN: 0888-7543
PB Academic
DT Journal
LA English
CC 3-3 (Biochemical Genetics)
Section cross-reference(s): 7, 13
- AB Human **collagenase-3 (MMP13)** is a recently identified member of the matrix **metalloproteinase (MMP)** family that is expressed in breast carcinomas and in articular **cartilage** from **arthritic** patients. In this work we have isolated and characterized genomic clones coding for human **collagenase-3**. This gene is composed of 10 exons and 9 introns and spans over 12.5 kb. The overall organization of the **collagenase-3** gene is similar to that of other **MMP** genes clustered at chromosome 11q22, including fibroblast **collagenase (MMP-1)**, matrilysin (**MMP-7**), and macrophage metalloelastase (**MMP-12**), but is more distantly related to genes coding for stromelysin-3 (**MMP-11**), **gelatinase-A (MMP-2)**, and **gelatinase-B (MMP-9)**, which map outside of this gene cluster. Nucleotide sequence anal. of about 1 kb of the 5'-flanking region of the **collagenase-3** gene revealed the presence of a TATA box, an AP-1 motif, a PEA-3 consensus sequence, an **osteoblast** specific element (OSE-2), and a TGF- β inhibitory element. Transient transfection expts. in HeLa and COS-1 cells with chloramphenicol acetyltransferase (CAT)-contg. constructs showed that the AP-1 site is functional and responsible for the obsd. inducibility of the reporter gene by the tumor promoter 12-O-tetradecanoylphorbol-13-acetate (TPA). However, and in contrast to other **MMP** genes, no significative synergistic effect on CAT activity between the AP-1 and PEA-3 elements found in the **collagenase-3** gene promoter was found. DNA binding anal. with nuclear exts. from HeLa cells revealed the formation of specific complexes between **collagenase-3** promoter sequences contg. the AP-1 site and nuclear proteins. The presence of this AP-1 functional site, which is able to confer responsiveness to a variety of tumor promoters and oncogene products, may contribute to explaining the high-level expression of **collagenase-3** in breast carcinomas and degenerative joint diseases.
- ST structural promoter characterization human **collagenase3** gene
IT Genetic element
RL: BAC (Biological activity or effector, except adverse); BOC

- (**Biological occurrence**); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)
(AP-1 site; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Genetic element
RL: BOC (**Biological occurrence**); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)
(TATA box; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Genetic element
RL: BOC (**Biological occurrence**); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)
(TGF- β . inhibitory element; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Gene, microbial
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(cat, AP-1 site is functional and responsible for the obsd. inducibility of the reporter gene by TPA; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT cDNA sequences
(for human **collagenase-3** (**MMP13**))
- IT Proteins, specific or class
RL: PRP (Properties)
(nuclear, specific complexes between **collagenase-3** promoter sequences contg. the AP-1 site and nuclear proteins; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Protein sequences
(of human **collagenase-3**)
- IT Genetic element
RL: BOC (**Biological occurrence**); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)
(**osteoblast** specific element-2; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Promoter (genetic element)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT 156656-98-3
RL: PRP (Properties)
(amino acid sequence; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT 141907-41-7, Matrix **metalloproteinase**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(matrix **metalloproteinase** family; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT 157114-69-7, GenBank X75308
RL: PRP (Properties)
(nucleotide sequence; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT 175449-82-8, **Collagenase-3**
RL: PRP (Properties)
(structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))

AN 1996:641394 HCAPLUS
 DN 125:269249
 TI Matrix **metalloprotease** assay and use in clinical diagnosis
 IN Fujimoto, Noboru; Yamashiro, Takayuki; Hosokawa, Nobuko; Tokai, Hideaki; Shinagawa, Akira; Yoshida, Shinichi; Iwata, Kazushi
 PA Fuji Yakuhin Kogyo Kk, Japan
 SO Jpn. Kokai Tokkyo Koho, 22 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM G01N033-53
 ICS C12N015-02; C12P021-08; G01N033-573; G01N033-577
 ICI C12P021-08, C12R001-91
 CC 7-1 (Enzymes)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08226918	A2	19960903	JP 1995-53794	19950220
	JP 2864219	B2	19990303		

AB A method for the detn. of free activated matrix **metalloproteases** (**MMP**) by employing a combination of monoclonal antibodies to **MMP** and inhibitors, and use of the method for the diagnosis. Assay of **MMP**-1-3 and -7-13 using monoclonal antibodies and tissue inhibitor of **metalloprotease**-1 (TIMP-1) and -2 (TIMP-2) are described. Prepn. of bovine TIMP-1, human TIMP-1, and monoclonal antibodies to **MMP**-1, -2, and -7, as well as the methods of detn. of activated human **MMP**-1, -2, and -9 were demonstrated. The methods are useful in the diagnosis of chronic **rheumatism** and deformed **arthritis**.
 ST matrix **metalloprotease** detn monoclonal antibody; diagnosis **rheumatism arthritis** matrix **metalloprotease** assay
 IT **Arthritis**
Rheumatism
 (diagnosis of; matrix **metalloprotease** assay and use in clin. diagnosis)
 IT 37205-61-1, Proteinase inhibitor
 RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (TIMP-1 and TIMP-2; matrix **metalloprotease** assay and use in clin. diagnosis)
 IT 9001-12-1, Matrix **metalloproteinase** 1 9004-06-2, Matrix **metalloproteinase**-12 79955-99-0, Matrix **metalloproteinase** 3 140610-48-6, Matrix **metalloproteinase** 10 141256-52-2, Matrix **metalloproteinase** 7 145267-01-2, Matrix **metalloproteinase** 11 146480-35-5, Matrix **metalloproteinase** 2 146480-36-6, Matrix **metalloproteinase** 9 175449-82-8, Matrix **metalloproteinase** 13
 RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (matrix **metalloprotease** assay and use in clin. diagnosis)

L98 ANSWER 25 OF 28 HCAPLUS COPYRIGHT 2002 ACS
 AN 1996:473281 HCAPLUS
 DN 125:105113
 TI Treatment of **rheumatic** diseases with agents which affect **collagenase** 3
 IN Wernicke, Dirk
 PA Max-Delbrueck-Centrum fuer Molekulare Medizin, Germany
 SO Ger. Offen., 3 pp.
 CODEN: GWXXBX

DT Patent
 LA German
 IC ICM A61K038-55
 ICS A61K038-19
 CC 1-7 (Pharmacology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19501032	A1	19960718	DE 1995-19501032	19950114
AB	<p>Rheumatic diseases characterized by joint degeneration, e.g. chronic polyarthritis and osteoarthritis, can be treated with agents which interfere with the activity of collagenase 3, a matrix metalloproteinase (MMP) assocd. with these diseases. These agents may act by suppressing transcription of the collagenase 3 gene or activation of the collagenase 3 proenzyme, directly inhibiting collagenase 3, or inducing the formation of natural MMP inhibitors with such agents as retinoids or interleukin 6 or 11 (no data). Suitable suppressors of transcription include (1) antisense oligonucleotides to regulatory sequences in the flanking regions of the gene and the splicing sequences, (2) antagonists of MMP-inducing cytokines (e.g. TNF-.alpha.), (3) enhancers of MMP-inhibiting cytokines (e.g. .beta.-transforming growth factor), and hormones (e.g. glucocorticoids, retinoids). Proenzyme activation may be prevented by limited proteolysis, oxidn. of the cysteine residue in the active site of collagenase 3, or alteration of the protein structure with SDS or chaotropic reagents. Among the direct inhibitors of collagenase 3 are .alpha.2-macroglobulin, antibiotics (e.g. tetracyclines), and synthetic peptides.</p>				
ST	antiarthritic collagenase 3 inhibitor;				
IT	<p>rheumatism transcription inhibitor collagenase 3 Enzyme functional sites (of collagenase 3, cysteine oxidn. in; treatment of rheumatic diseases with agents which affect collagenase 3)</p>				
IT	<p>Peptides, biological studies RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (synthetic; treatment of rheumatic diseases with agents which affect collagenase 3)</p>				
IT	<p>Rheumatism Transcription, genetic (treatment of rheumatic diseases with agents which affect collagenase 3)</p>				
IT	<p>Antibiotics Hormones Lymphokines and Cytokines Retinoids RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (treatment of rheumatic diseases with agents which affect collagenase 3)</p>				
IT	<p>Inflammation inhibitors (antiarthritics, treatment of rheumatic diseases with agents which affect collagenase 3)</p>				
IT	<p>Denaturants (chaotropic, treatment of rheumatic diseases with agents which affect collagenase 3)</p>				
IT	<p>Corticosteroids, biological studies RL: BAC (Biological activity or effector, except adverse); BSU (Biological</p>				

- study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (gluco-, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (interleukin 1, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (interleukin 11, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (interleukin 6, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (leukemia-inhibiting factor, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Nucleotides, biological studies
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (oligo-, deoxyribo-, antisense; treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (tumor necrosis factor-.alpha., treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Macroglobulins
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (.alpha.2-, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Animal growth regulators
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (.beta.-transforming growth factors, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT 52-90-4, Cysteine, biological studies
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
 (of **collagenase 3** active site, oxidn. of; treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT 175449-82-8, Collagenase 3
 RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
 (treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT 60-54-8D, Tetracycline, derivs. 151-21-3, SDS, biological studies

302-79-4, all-trans-Retinoic acid 1402-38-6, Oncostatin 9001-92-7,
Proteinase 37259-58-8, Serine proteinase 141907-41-7, Matrix

metalloproteinase

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(treatment of **rheumatic** diseases with agents which affect
collagenase 3)

IT **176742-44-2, Procollagenase 3**

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(treatment of **rheumatic** diseases with agents which affect
collagenase 3)

L98 ANSWER 26 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN **1996:278516** HCAPLUS

DN **124:340026**

TI The new **collagenase, collagenase-3**, is expressed and synthesized by human chondrocytes but not by **synoviocytes**. A role in **osteoarthritis**

AU Reboul, Pascal; Pelletier, Jean-Pierre; Tardif, Ginette; Cloutier, Jean-Marie; Martel-Pelletier, Johanne

CS Notre-Dame Hospital, Univ. of Montreal, Montreal, QC, H2L 4K8, Can.

SO Journal of Clinical Investigation (1996), 97(9), 2011-2019

CODEN: JCINAO; ISSN: 0021-9738

PB Rockefeller University Press

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 7, 15

AB Recently, a new human **collagenase, collagenase-3** has been identified. Since collagen changes are of particular importance in **cartilage** degeneration, the authors investigated if **collagenase-3** plays a role in **osteoarthritis** (OA). Reverse transcriptase-PCR anal. revealed that in articular tissues **collagenase-3** was expressed by the chondrocytes but not by the **synoviocytes**. Northern blot anal. of the chondrocyte mRNA revealed the presence of two major gene transcripts of 3.0 and 2.5 kb, and a third one of 2.2 kb was occasionally present. Compared to normal, OA showed a significantly higher (3.0 kb; 2.5 kb) level of **collagenase-3** mRNA expression. **Collagenase-3** had a higher catalytic velocity rate (about fivefold) than **collagenase-1** on type II collagen. With the use of two specific antibodies, the authors showed that human chondrocytes had the ability to produce **collagenase-3** as a proenzyme and as a glycosylated doublet. The chondrocyte **collagenase-3** protein is produced in a significantly higher level in OA (.apprx.9.5-fold) than in normal. The synthesis and expression of this new **collagenase** could also be modulated by two proinflammatory cytokines, IL-1.beta. and TNF-.alpha., in a time- and dose-dependent manner. This study provides novel and interesting data on **collagenase-3** expression and synthesis in human **cartilage** cells and suggest its involvement in human OA **cartilage** pathophysiol.

ST **collagenase 3** chondrocyte **synoviocyte**
osteoarthritis

IT Gene, animal

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(**collagenase-3**, is expressed and synthesized by human **osteoarthritis** chondrocytes but not by **synoviocytes**)

IT Ribonucleic acids, messenger

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)

(for collagenase-3 of chondrocytes of humans with osteoarthritis)

- IT **Chondrocyte**
(articular, collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)
- IT Lymphokines and Cytokines
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(interleukin 1.beta., stimulation of human osteoarthritis chondrocyte expression of collagenase-3 by)
- IT **Arthritis**
(osteoarthritis, collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)
- IT **Synovial membrane**
(synoviocyte, collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)
- IT Lymphokines and Cytokines
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(tumor necrosis factor-.alpha., stimulation of human osteoarthritis chondrocyte expression of collagenase-3 by)
- IT **175449-82-8, Collagenase-3**
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence)
(collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)
- IT **176742-44-2, Procollagenase 3**
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)

L98 ANSWER 27 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1996:275807 HCAPLUS

DN 124:314276

TI Cloning of collagenase 3 from the synovial membrane and its expression in rheumatoid arthritis and osteoarthritis

AU Wernicke, Dirk; Seyfert, Christine; Hinzmann, Bernd; Gromnica-Ihle, Erika

CS Clinic Orthopedy/Rheumatology, Max Delbrück Center Molecular Medicine, Berlin, Germany

SO Journal of Rheumatology (1996), 23(4), 590-595

CODEN: JRHUA9; ISSN: 0315-162X

PB Journal of Rheumatology Publishing Co. Ltd.

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 3, 7

AB The objective was to analyze synovial membranes of patients with rheumatoid arthritis (RA) for the

expression of unknown matrix **metalloproteinases (MMP)**. Degenerate oligonucleotides corresponding to highly conserved regions of the **MMP** gene family and the rapid amplification of cDNA ends (RACE) method have been used to search for new members of this gene family. **MMP** gene expression has been characterized by Northern blot anal. The authors cloned a **MMP** cDNA from the **synovial membrane** that is completely identical to the recently published **collagenase 3** cDNA derived from a human breast cancer cDNA library (Freije, J., et al., 1994). **Collagenase 3** is expressed in parallel with interstitial **collagenase** and stromelysin 1 in RA and **osteoarthritis** (OA). **Collagenase 3** gene expression was not detected in several normal human tissues. The expression of **collagenase 3** in the **synovial membrane** in RA and OA suggests its involvement in articular tissue degrading.

ST **collagenase 3 synovium rheumatoid arthritis osteoarthritis**

IT Gene, animal

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(expression; human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

IT **Synovial membrane**

Transcription, genetic

(human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

IT **Arthritis**

(**osteoarthritis**, human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

IT **Arthritis**

(**rheumatoid**, human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

IT 9001-12-1, **Collagenase 3** 79955-99-0, **Stromelysin-1** 175449-82-8, **Collagenase 3**

RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)

(human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

L98 ANSWER 28 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1996:187785 HCAPLUS

DN 124:283007

TI Cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic cartilage**

AU Mitchell, Peter G.; Magna, Holly A.; Reeves, Lisa M.; Lopresti-Morrow, Lori L.; Yocum, Sue A.; Rosner, Philip J.; Geoghegan, Kieran F.; Hambor, John E.

CS Central Research Division, Pfizer Inc., Groton, CT, 06340, USA

SO Journal of Clinical Investigation (1996), 97(3), 761-8

CODEN: JCINAO; ISSN: 0021-9738

PB Rockefeller University Press

DT Journal

- LA English
 CC 7-5 (Enzymes)
 Section cross-reference(s): 1, 3, 13
- AB Proteolysis of triple-helical collagen is an important step in the progression toward irreversible tissue damage in **osteoarthritis**. Earlier work on the expression of enzymes in **cartilage** suggested that **c collagenase-1 (MMP-1)** contributes to the process. Degenerate reverse transcription polymerase chain reaction expts., Northern blot anal., and direct immunodetection have now provided evidence that **collagenase-3 (MMP-13)**, an enzyme recently cloned from human breast carcinoma, is expressed by chondrocytes in human **osteoarthritic cartilage**. Variable levels of **MMP-13 mRNA** were present in total RNA prepd. from six **osteoarthritic cartilage** samples. Expression of both **MMP-13** and **MMP-1** in **cartilage** was significantly induced at both the message and protein levels by interleukin-1.alpha.. Recombinant **MMP-13** cleaved type II collagen to give characteristic 3/4 and 1/4 fragments; however, **MMP-13** turned over type II collagen at least 10 times faster than **MMP 1**. Expts. with intact type II collagen as well as a synthetic peptide suggested that **MMP-13** cleaved type II collagen at the same bond as **MMP-1**, but this was then followed by a secondary cleavage that removed three amino acids from the 1/4 fragment amino terminus. The expression of **MMP-13** in **osteoarthritic cartilage** and its activity against type II collagen suggest that the enzyme plays a significant role in **cartilage** collagen degrdn., and must consequently form part of a complex target for proposed therapeutic interventions based on **collagenase** inhibition.
- ST **matrix metalloproteinase 13 collagen osteoarthritic cartilage; collagenase 3 collagen II osteoarthritic cartilage**
- IT Protein sequences
 (cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic cartilage**)
- IT Ribonucleic acids, messenger
 RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
 (cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic cartilage**)
- IT Cartilage
 (osteoarthritic; cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase -13** from human **osteoarthritic cartilage**)
- IT Arthritis
 (osteoarthritis, cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase -13** from human **osteoarthritic cartilage**)
- IT Collagens, biological studies
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
 (type II, cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic cartilage**)
- IT 175449-82-8, Matrix metalloproteinase-13
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human

osteoarthritic cartilage)

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L120 ANSWER 1 OF 7 MEDLINE
AN 2001252188 MEDLINE
DN 21248324 PubMed ID: 11350843
TI Analysis of the cell infiltrate and expression of matrix metalloproteinases and granzyme B in paired synovial biopsy specimens from the cartilage-pannus junction in patients with RA.
AU Smeets T J; Kraan M C; Galjaard S; Youssef P P; Smith M D; Tak P P
CS Division of Clinical Immunology and Rheumatology, Academic Medical Centre, Amsterdam, The Netherlands.. T.J.Smeets@amc.uva.nl
SO ANNALS OF THE RHEUMATIC DISEASES, (2001 Jun) 60 (6) 561-5.
CY England: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200106
ED Entered STN: 20010611
Last Updated on STN: 20010611
Entered Medline: 20010607
AB OBJECTIVES: Examination of synovial tissue (ST) obtained at surgery because of end stage destructive rheumatoid arthritis (RA) showed that macrophages and fibroblasts are the major cell types at the cartilage-pannus junction (CPJ). This study aimed at defining the cell infiltrate and mediators of joint destruction in ST selected at arthroscopy from the CPJ in patients with RA who did not require joint surgery. METHODS: Paired synovial biopsy specimens were obtained at arthroscopy from ST adjacent to the CPJ and the suprapatellar pouch from the knee joints of 17 patients with RA. Immunohistological analysis was performed using monoclonal antibodies to detect T cells, B cells, plasma cells, macrophages, fibroblast-like synoviocytes, mast cells, and granzyme B+ cytotoxic cells as well as the expression of metalloproteinase (MMP)-1,

MMP-3, and MMP-13. The sections were evaluated by computer assisted image analysis and semiquantitative analysis. RESULTS: The cell infiltrate comprised mainly T cells, macrophages, and plasma cells. The ST was also infiltrated by the other cell types, but at lower numbers. Expression of MMPs was abundant, especially MMP-3. The features of ST at the CPJ were generally similar to those at the suprapatellar pouch. CONCLUSIONS: The synovium at the CPJ in patients with RA who did not require joint surgery exhibits, in general, the same type of cell infiltrate and expression of MMPs and granzymes as ST from the suprapatellar pouch. The pathological changes that have been described at the CPJ in patients with RA with end stage, destructive disease may well reflect the transition to a process in which macrophages, fibroblast-like synoviocytes, and other cell types become increasingly important.

CT Check Tags: Female; Human; Male

Adult

Aged

Aged, 80 and over

*Arthritis, Rheumatoid: EN, enzymology

Arthritis, Rheumatoid: IM, immunology

Biopsy

*Cartilage, Articular: EN, enzymology

Cartilage, Articular: IM, immunology

Immunoenzyme Techniques

Macrophages: IM, immunology

*Matrix Metalloproteinases: ME, metabolism

Middle Age

Plasma Cells: IM, immunology

*Serine Endopeptidases: ME, metabolism

*Synovial Membrane: EN, enzymology

Synovial Membrane: IM, immunology

T-Lymphocyte Subsets: IM, immunology

CN EC 3.4.21 (Serine Endopeptidases); EC 3.4.21.79 (granzyme B); EC 3.4.24.- (Matrix Metalloproteinases)

L120 ANSWER 2 OF 7 MEDLINE

AN 2001063754 MEDLINE

DN 20496800 PubMed ID: 11040455

TI Induction of collagenase-3 (MMP-13

) in rheumatoid arthritis synovial fibroblasts.

AU Moore B A; Aznavoorian S; Engler J A; Windsor L J

CS Research Center in Oral Biology, University of Alabama at Birmingham, AL 35294, USA.

NC 1P50DE/CA11910-01 (NIDCR)

P50DE08228 (NIDCR)

R01DE10631 (NIDCR)

+

SO BIOCHIMICA ET BIOPHYSICA ACTA, (2000 Oct 18) 1502 (2) 307-18.

Journal code: 0217513. ISSN: 0006-3002.

CY Netherlands

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200012

ED Entered STN: 20010322

Last Updated on STN: 20010322

Entered Medline: 20001222

AB There is a growing body of evidence that implicates matrix metalloproteinases (MMPs) as major players in numerous diseased conditions. The articular cartilage degradation that is characteristic of rheumatoid arthritis (RA) is believed to be mediated by the collagenase subfamily of matrix metalloproteinases. The preference of collagenase-3 (CL-3) for collagen type II makes it a likely candidate in the turnover of articular cartilage and a potential

target for drug development. In this study, RA synovial membrane tissue was shown to express CL-3 mRNA by reverse transcriptase-polymerase chain reaction (RT-PCR) and protein by immunohistochemistry. Fibroblasts isolated and cultured from RA synovial membrane tissue were induced to express CL-3 mRNA. CL-3 mRNA was detected after PMA treatment in 16 of the 18 RA synovial membrane fibroblast cell lines established for this study. These fibroblasts also expressed mRNA for collagenase-1 (CL-1, MMP-1), membrane type-1 matrix metalloproteinase, gelatinase A, gelatinase B, stromelysin-1, stromelysin-2, TIMP-1, and TIMP-2. They were further shown to express CL-1 mRNA constitutively and CL-3 mRNA only after stimulation with PMA, IL-1, TGF-beta1, TNF-alpha, or IL-6 with IL-6sR. These fibroblasts also expressed after induction both CL-1 and CL-3 at the protein level as determined by Western blot analyses and immunofluorescence.

CT Check Tags: Human; In Vitro; Support, U.S. Gov't, P.H.S.
Antibodies

*Arthritis, Rheumatoid: EN, enzymology

Arthritis, Rheumatoid: GE, genetics

Base Sequence

Blotting, Western

*Collagenases: BI, biosynthesis

Collagenases: GE, genetics

Collagenases: IM, immunology

Cytokines: PD, pharmacology

DNA Primers: GE, genetics

Enzyme Induction

Fibroblasts: ME, metabolism

Immunohistochemistry

Interstitial Collagenase: BI, biosynthesis

Interstitial Collagenase: GE, genetics

Microscopy, Fluorescence

RNA, Messenger: GE, genetics

RNA, Messenger: ME, metabolism

Reverse Transcriptase Polymerase Chain Reaction

*Synovial Membrane: EN, enzymology

Tetradecanoylphorbol Acetate: PD, pharmacology

Tissue Inhibitor of Metalloproteinases: GE, genetics

RN 16561-29-8 (Tetradecanoylphorbol Acetate)

CN 0 (Antibodies); 0 (Cytokines); 0 (DNA Primers); 0 (RNA, Messenger); 0 (Tissue Inhibitor of Metalloproteinases); EC 3.4.24.- (Collagenases); EC 3.4.24.- (collagenase 3); EC 3.4.24.7 (Interstitial Collagenase)

L120 ANSWER 3 OF 7 MEDLINE

AN 2000001910 MEDLINE

DN 20001910 PubMed ID: 10531072

TI Expression of laminins and their integrin receptors in different conditions of synovial membrane and synovial membrane-like interface tissue.

AU Konttinen Y T; Li T F; Xu J W; Tagaki M; Pirila L; Silvennoinen T; Santavirta S; Virtanen I

CS Department of Medicine, Helsinki University Central Hospital, Helsinki, Finland.

SO ANNALS OF THE RHEUMATIC DISEASES, (1999 Nov) 58 (11) 683-90.
Journal code: 0372355. ISSN: 0003-4967.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199912

ED Entered STN: 20000113

Last Updated on STN: 20000113

Entered Medline: 19991207

AB OBJECTIVE: To demonstrate the expression of laminins (Lns) and their integrin (Int) receptors in different synovial samples and synovial membrane-like interface tissues from well fixed and aseptically loosened total hip replacement (THR), and the potential role of Ln-Int interaction in the production of collagenases and cytokines. METHODS: Immunohistochemical staining was done to detect the distribution of EHS Ln, Ln alpha2, alpha3, alpha5, beta1, beta2 chains and Int alpha1, alpha2, alpha3, alpha6, beta1, beta4 subunits in different samples. Double immunofluorescence labelling was used to find colocalisation of Int alpha6 subunit and collagenase-1/collagenase-3/TNFalpha/IL6. RESULTS: General Ln immunoreactivity was detected in all specimens. Ln alpha5, beta1 and beta2, but not alpha2 and alpha3 chains were seen in the synovial lining and the basement membrane of blood vessels with the intensity/extent of labelling in the following rank order: rheumatoid arthritis (RA) loosened prostheses, osteoarthritis, well fixed prostheses, traumatic knees. Among Int subunits, staining for beta1 was usually the strongest, followed by staining for Int alpha6, alpha1, alpha3, and alpha2 subunits, with the same rank order for overall expression of Lns. Int beta4 subunit was not detectable in most of the specimens. Double labelling focused on Int alpha6 subunit disclosed its frequent colocalisation with collagenases 1 and 3 and with tumour necrosis factor alpha and interleukin 6 in synovial lining. CONCLUSION: Synovial lining contains Ln-10, Ln-11, and Int alpha6beta1 and alpha1beta1 receptors. In aseptic loosening of THR, interface tissue has a similar Ln subtype and Int receptor composition as RA synovium, which confirms its "lining-like" phenotype. Synovial lining does not contain Ln-5 (alpha3beta3gamma2) or Int alpha6beta4, which are components of epithelial hemidesmosomes. The expression of Lns and their Int receptors is upregulated in inflammation. The close spatial relation between Ln and its Int receptors in synovial lining cells containing proteinases and cytokines suggests a potential role in joint destruction and prosthetic loosening.

CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't

Adult

Aged

Aged, 80 and over

*Arthritis, Rheumatoid: ME, metabolism

Fluorescent Antibody Technique

*Hip Prosthesis

Immunoenzyme Techniques

*Integrins: ME, metabolism

*Laminin: ME, metabolism

Middle Age

Osteoarthritis, Hip: ME, metabolism

Prosthesis Failure

*Synovial Membrane: ME, metabolism

CN 0 (Integrins); 0 (Laminin)

L120 ANSWER 4 OF 7 MEDLINE

AN 1999444775 MEDLINE

DN 99444775 PubMed ID: 10517187

TI Collagenase-3 (MMP-13) and its activators in rheumatoid arthritis: localization in the pannus-hard tissue junction and inhibition by alendronate.

AU Konttinen Y T; Salo T; Hanemaaijer R; Valleala H; Sorsa T; Sutinen M; Ceponis A; Xu J W; Santavirta S; Teronen O; Lopez-Otin C

CS Department of Medicine, Helsinki University Central Hospital, Finland.. yrjo.konttinen@helsinki.fi

SO MATRIX BIOLOGY, (1999 Aug) 18 (4) 401-12.

Journal code: 9432592. ISSN: 0945-053X.

CY GERMANY: Germany, Federal Republic of

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199911
ED Entered STN: 20000111
Last Updated on STN: 20000111
Entered Medline: 19991103
AB The hypothesis of the present work was that the pannus tissue overlying the articular hard tissues has an aggressive phenotype and contains the newly discovered **collagenase-3** and its endogenous inducers and activators. We therefore analyzed the eventual presence of **collagenase-3** and its regulation at the pannus-cartilage junction. **Collagenase-3** mRNA (in situ hybridization) and enzyme protein (ABC and immunofluorescence staining) were found in the pannocytes in the pannus-hard tissue junction. Inflammatory round cells associated with the critical interface contained TNF-alpha and IL-1beta. These cytokines induced **collagenase-3** secretion in cultured rheumatoid synovial fibroblasts. Procollagenase-3 activators, stromelysin-1, 72 kDa type IV collagenase/gelatinase and membrane-type 1-MMP, were also found in the pannus-hard tissue junction. Active **collagenase-3** was inhibited with alendronate (IC50 = 500-750 microM). **Collagenase-3**, due to its substrate profile and local synthesis in a milieu favoring its activation, might play a major role in the degradation of cartilage type II and bone type I collagens. Alendronate, at concentrations attainable in vivo, is able to inhibit **collagenase-3**. This might offer an option to control **collagenase-3**-mediated tissue destruction in rheumatoid arthritis.
CT Check Tags: Female; Human; Male
Adult
Aged
*Alendronate: PD, pharmacology
*Arthritis, Rheumatoid: EN, enzymology
Arthritis, Rheumatoid: PA, pathology
Blotting, Western
*Cartilage, Articular: EN, enzymology
Cartilage, Articular: PA, pathology
Collagenases: AI, antagonists & inhibitors
*Collagenases: ME, metabolism
*Enzyme Inhibitors: PD, pharmacology
*Exudates and Transudates: EN, enzymology
Immunohistochemistry
Interleukin-1: ME, metabolism
Matrix Metalloproteinases: AI, antagonists & inhibitors
*Matrix Metalloproteinases: ME, metabolism
Middle Age
*Synovial Membrane: EN, enzymology
Synovial Membrane: PA, pathology
Tumor Necrosis Factor: ME, metabolism
RN 66376-36-1 (Alendronate)
CN 0 (Enzyme Inhibitors); 0 (Interleukin-1); 0 (Tumor Necrosis Factor); EC 3.4.24.- (Collagenases); EC 3.4.24.- (Matrix Metalloproteinases); EC 3.4.24.- (**collagenase 3**)
L120 ANSWER 5 OF 7 MEDLINE
AN 1999326633 MEDLINE
DN 99326633 PubMed ID: 10397973
TI Matrix metalloproteinases and tissue inhibitors of metalloproteinases in joint fluid of the patients with loose artificial hip joints.
AU Takei I; Takagi M; Santavirta S; Ida H; Hamasaki M; Ishii M; Fukushima S; Ogino T; Konttinen Y T
CS Department of Orthopaedic Surgery, Yamagata University School of Medicine, 2-2-2 Iida-Nishi, Yamagata, 990-9585, Japan.. itakei@med.id.yamagata-u.ac.jp
SO JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, (1999 Jun 5) 45 (3) 175-83.
Journal code: 0112726. ISSN: 0021-9304.

CY United States
DT (CLINICAL TRIAL)
Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200005
ED Entered STN: 20000525
Last Updated on STN: 20000525
Entered Medline: 20000518

AB The pseudojoint cavity formed in patients undergoing total hip arthroplasty (THA) is later remodeled to synovial membrane-like tissue, which produces pseudosynovial fluid. This pseudosynovium also is an important source of matrix metalloproteinases (MMPs). As it is widely speculated that synovial fluid MMPs may contribute to local tissue degradation in rheumatoid arthritis (RA) and osteoarthritis (OA), we hypothesize that locally produced MMPs are found in the pseudosynovial fluid, via which they have access to the implant-host interface, and that if they retain their proteolytic potential, they might contribute to aseptic loosening. Enzyme-linked immunosorbent assay (ELISA), immunoblotting, and zymography were used to analyze MMPs and tissue inhibitors of metalloproteinases (TIMPs) in synovial fluid in aseptic loosening, which was compared to RA and OA. Pseudosynovial THA fluid was characterized using low levels of MMP-1 but moderate levels of MMP-13 and MT1-MMP (MMP-14). Due to the lack of an appropriate assay, MMP-13 and MT1-MMP were not similarly assessed, but the immunoblotting indicated that they were in the 56 kD intermediate proteolytically processed forms. The MMP-9 level was intermediate between RA and OA. MMP-2 was on a significant level, but there were no differences among study groups. The THA group also was characterized using relatively high levels of TIMP-1 and TIMP-2. Accordingly, MMP-9 and MMP-2 were found to occur in the 92 kD and 72 kD proenzyme form, respectively, with full activity retained in all study groups. The data suggest that proMMP-2-TIMP-2 and proMMP-9-TIMP-1 complexes are formed in the pseudosynovial fluid due to the excess of TIMPs over MMPs in aseptic loosening of THA. TIMP-complexed MMPs are resistant to MMP-mediated proteolytic activation, which may explain their latency and proenzyme zymogen form. Thus, formation of stabilizing proMMP-TIMP complexes enable transportation of proMMPs far from their original site of production. Due to motion-associated cyclic changes of the intra-articular pressure, fluid-phase MMPs stabilized by TIMPs might be absorbed to implant surfaces and interface tissues and help to dissect the implant/cement-to-bone interface in situ. Consequently, they may contribute to local proteolytic/tissue destructive events and aseptic loosening.
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CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't
Aged

Arthritis, Rheumatoid: ME, metabolism
Enzyme-Linked Immunosorbent Assay
Gelatin: DU, diagnostic use
*Hip Prosthesis
Immunoblotting
Matrix Metalloproteinases: AI, antagonists & inhibitors
*Matrix Metalloproteinases: ME, metabolism
Microscopy, Electron, Scanning
Middle Age
Osteoarthritis: ME, metabolism
*Prosthesis Failure
Reoperation
*Synovial Fluid: ME, metabolism
*Tissue Inhibitor of Metalloproteinases: ME, metabolism
Tissue Inhibitor-of Metalloproteinase-2: ME, metabolism
Tissue-Inhibitor of Metalloproteinase-1: ME, metabolism
RN 127497-59-0 (Tissue Inhibitor-of Metalloproteinase-2); 9000-70-8 (Gelatin)

CN 0 (Tissue Inhibitor of Metalloproteinases); 0 (Tissue-Inhibitor of Metalloproteinase-1); EC 3.4.24.- (Matrix Metalloproteinases)

L120 ANSWER 6 OF 7 MEDLINE

AN 1998148233 MEDLINE

DN 98148233 PubMed ID: 9487253

TI Comparative immunolocalization studies of collagenase 1 and **collagenase 3** production in the rheumatoid lesion, and by human chondrocytes and synoviocytes in vitro.

AU Tetlow L C; Woolley D E

CS University Department of Medicine, Manchester Royal Infirmary.

SO BRITISH JOURNAL OF RHEUMATOLOGY, (1998 Jan) 37 (1) 64-70.

Journal code: 8302415. ISSN: 0263-7103.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 199803

ED Entered STN: 19980326

Last Updated on STN: 20000303

Entered Medline: 19980319

AB The degradation of fibrillar type II collagen is a major feature of cartilage destruction in rheumatoid arthritis (RA). Since **collagenase 3** is produced by chondrocytes and preferentially degrades type II cartilage collagen, it seemed likely that this enzyme would have a prominent role in the destruction of rheumatoid joints. Using immunolocalization techniques, we have examined and compared the production and distributions of collagenase 1 and **collagenase 3** in cells and tissues derived from rheumatoid knee arthroplasties. Primary cultures of chondrocytes stimulated with interleukin-1 beta showed that most of the cells produced collagenase 1, whereas only a minority (approximately 5-10%) produced **collagenase 3**; a few chondrocytes demonstrated the co-ordinate production of both enzymes. Primary cultures of rheumatoid synoviocytes produced collagenase 1, but not **collagenase 3**. Both enzymes were demonstrated in the rheumatoid lesion. Collagenase 1 was more commonly observed in both synovium and cartilage (22 of the 28 specimens), was especially prominent at cartilage erosion sites, and most of the positive specimens demonstrated extracellular enzyme. By contrast, **collagenase 3** was observed less frequently (7/28 specimens) and was produced by relatively few chondrocytes and synovial cells, this usually being much less than that observed for chondrocytes of osteoarthritic cartilage. These observations suggest different regulatory mechanisms for the production of collagenases 1 and 3 in the rheumatoid lesion, and demonstrate that the distribution and production of collagenase 1 are far more prevalent than those for **collagenase 3**.

CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't

*Arthritis, Rheumatoid: ME, metabolism

Cartilage, Articular: ME, metabolism

Cells, Cultured

Chondrocytes: DE, drug effects

*Chondrocytes: ME, metabolism

*Collagenases: ME, metabolism

Fluorescent Antibody Technique, Indirect

Immunohistochemistry

Interleukin-1: PD, pharmacology

Interstitial Collagenase

Synovial Membrane: CY, cytology

Synovial Membrane: DE, drug effects

*Synovial Membrane: ME, metabolism

CN 0 (Interleukin-1); EC 3.4.24.- (Collagenases); EC 3.4.24.- (**collagenase 3**); EC 3.4.24.7 (Interstitial Collagenase)

L120 ANSWER 7 OF 7 MEDLINE
AN 97402354 MEDLINE
DN 97402354 PubMed ID: 9259418
TI **Matrix metalloproteinase 13 (collagenase 3)** in human rheumatoid synovium.
AU Lindy O; Konttinen Y T; Sorsa T; Ding Y; Santavirta S; Ceponis A; Lopez-Otin C
CS University of Helsinki, Finland.
SO ARTHRITIS AND RHEUMATISM, (1997 Aug) 40 (8) 1391-9.
Journal code: 0370605. ISSN: 0004-3591.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199709
ED Entered STN: 19970922
Last Updated on STN: 19970922
Entered Medline: 19970908
AB OBJECTIVE: To show the eventual presence and extent of production of **matrix metalloproteinase 13 (MMP-13, or collagenase 3)** in rheumatoid synovial tissue samples and extracts, and to assess the inhibition characteristics of recombinant **MMP-13**. METHODS: Immunohistochemical avidin-biotin-peroxidase complex staining/morphometry was used to analyze **MMP-13**-positive cells in situ. Neutral salt extraction of synovial tissue, electrophoresis of the extract in different buffer systems, and Western blotting were also used. The inhibitory properties of doxycycline, clodronate, pamidronate, and D-penicillamine for recombinant enzyme were determined with a soluble type II collagen assay. RESULTS: **MMP-13** was detected in fibroblast- and macrophage-like mononuclear cells in the synovial lining and stroma and in vascular endothelial cells. The overall expression of **MMP-13** in these cells in the synovial stroma was high in rheumatoid arthritis (86 +/- 12%) compared with osteoarthritis (17 +/- 5%) patient samples (P = 0.0027). In a high-pH native electrophoresis gel, immunoreactivity to anti-MMP-1 and anti-MMP-13 were clearly separated, with anti-MMP-13-immunoreactive material migrating faster than anti-MMP-1-immunoreactive material. Finally, in contrast to MMP-1 and MMP-8, **MMP-13** was found to be relatively resistant to the inhibitory effects of doxycycline and clodronate in vitro. CONCLUSION: Due to its localization in synovial tissue, its substrate profile, increased expression, and relative resistance to known MMP inhibitors, **MMP-13** is suggested to play a major role in the pathogenesis of tissue destruction in rheumatoid arthritis.
CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't
Adult
Aged
Aged, 80 and over
*Arthritis, Rheumatoid: EN, enzymology
Arthritis, Rheumatoid: GE, genetics
Cartilage, Articular: CH, chemistry
Cartilage, Articular: EN, enzymology
Clodronic Acid: PD, pharmacology
Collagenases: AI, antagonists & inhibitors
*Collagenases: GE, genetics
Diphosphonates: PD, pharmacology
Immunoblotting
Immunohistochemistry
Middle Age
Osteoarthritis: EN, enzymology
Osteoarthritis: GE, genetics
Penicillamine: PD, pharmacology

RNA, Messenger: ME, metabolism
Recombinant Proteins: GE, genetics

Synovial Membrane: CH, chemistry

*Synovial Membrane: EN, enzymology

RN 10596-23-3 (Clodronic Acid); 40391-99-9 (amidronate); 52-67-5
(Penicillamine)

CN 0 (Diphosphonates); 0 (RNA, Messenger); 0 (Recombinant Proteins); EC
3.4.24.- (Collagenases); EC 3.4.24.- (collagenase 3)

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FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 7 November 2002 (20021107/ED)

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L126 ANSWER 1 OF 1 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AN 2001:338794 BIOSIS

DN PREV200100338794

TI Analysis of the cell infiltrate and expression of matrix
metalloproteinases and granzyme B in paired synovial biopsy specimens from
the cartilage-pannus junction in patients with RA.

AU Smeets, T. J. M. (1); Kraan, M. C.; Galjaard, S.; Youssef, P. P.; Smith,
M. D.; Tak, P. P.

CS (1) Division of Clinical Immunology and Rheumatology, Department of
Medicine, Academic Medical Centre, Meibergdreef 9, 1105 AZ, Amsterdam:
T.J.Smeets@amc.uva.nl Netherlands

SO Annals of the Rheumatic Diseases, (June, 2001) Vol. 60, No. 6, pp.
561-565. print.
ISSN: 0003-4967.

DT Article

LA English

SL English

AB Objectives: Examination of synovial tissue (ST) obtained at surgery
because of end stage destructive rheumatoid arthritis (RA) showed that
macrophages and fibroblasts are the major cell types at the
cartilage-pannus junction (CPJ). This study aimed at defining the cell
infiltrate and mediators of joint destruction in ST selected at
arthroscopy from the CPJ in patients with RA who did not require joint
surgery. Methods: Paired synovial biopsy specimens were obtained at
arthroscopy from ST adjacent to the CPJ and the suprapatellar pouch from
the knee joints of 17 patients with RA. Immunohistological analysis was
performed using monoclonal antibodies to detect T cells, B cells, plasma
cells, macrophages, fibroblast-like synoviocytes, mast cells, and granzyme
B+ cytotoxic cells as well as the expression of metalloproteinase (MMP)-1,
MMP-3, and MMP-13. The sections were evaluated by
computer assisted image analysis and semiquantitative analysis. Results:
The cell infiltrate comprised mainly T cells, macrophages, and plasma
cells. The ST was also infiltrated by the other cell types, but at lower
numbers. Expression of MMPs was abundant, especially MMP-3. The features
of ST at the CPJ were generally similar to those at the suprapatellar
pouch. Conclusions: The synovium at the CPJ in patients with RA who did
not require joint surgery exhibits, in general, the same type of cell
infiltrate and expression of MMPs and granzymes as ST from the
suprapatellar pouch. The pathological changes that have been described at
the CPJ in patients with RA with end stage, destructive disease may well

- reflect the transition to a process in which macrophages, fibroblast-like synoviocytes, and other cell types become increasingly important.
- CC Cytology and Cytochemistry - Animal *02506
Cytology and Cytochemistry - General *02502
Enzymes - General and Comparative Studies; Coenzymes *10802
Pathology, General and Miscellaneous - Diagnostic *12504
Blood, Blood-Forming Organs and Body Fluids - Blood and Lymph Studies *15002
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry *18004
Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology *18006
Immunology and Immunochemistry - General; Methods *34502
Immunology and Immunochemistry - Immunopathology, Tissue Immunology *34508
Allergy *35500
- IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Cell Biology; .
Clinical Immunology (Human Medicine, Medical Sciences); Rheumatology (Human Medicine, Medical Sciences)
- IT Parts, Structures, & Systems of Organisms
B cells: blood and lymphatics, immune system; T cells: blood and lymphatics, immune system; knee joint: skeletal system; synovium: skeletal system
- IT Diseases
rheumatoid arthritis: connective tissue disease, immune system disease, joint disease
- IT Chemicals & Biochemicals
granzyme B; matrix metalloproteinase-1 [MMP-1]: expression;
matrix metalloproteinase-13 [MMP-13]: expression; matrix metalloproteinase-3 [MMP-3]: expression
- IT Alternate Indexing
Arthritis, Rheumatoid (MeSH)
- IT Methods & Equipment
synovial biopsy: diagnostic method
- IT Miscellaneous Descriptors
cartilage-pannus junction
- RN 143180-74-9 (GRANZYME B)
9001-12-1 (MATRIX METALLOPROTEINASE-1)
175449-82-8 (MATRIX METALLOPROTEINASE-13)
175449-82-8 (MMP-13)
79955-99-0 (MATRIX METALLOPROTEINASE-3)
79955-99-0 (MMP-3)

=> d all tot

L137 ANSWER 1 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2000:540979 BIOSIS
DN PREV200000540979
TI Induction of **collagenase-3 (MMP-13)**
) in **rheumatoid arthritis** synovial fibroblasts.
AU Moore, Bryan A.; Aznavoorian, Sadie; Engler, Jeffrey A.; Windsor, L. Jack
(1)
CS (1) Department of Oral Biology, Indiana University, Indianapolis, IN,
46202-5186 USA
SO Biochimica et Biophysica Acta, (18 October, 2000) Vol. 1502, No.
2, pp. 307-318. print.
ISSN: 0006-3002.
DT Article
LA English

- SL English
- AB There is a growing body of evidence that implicates matrix metalloproteinases (MMPs) as major players in numerous diseased conditions. The articular cartilage degradation that is characteristic of **rheumatoid arthritis** (RA) is believed to be mediated by the collagenase subfamily of matrix metalloproteinases. The preference of **collagenase-3** (CL-3) for collagen type II makes it a likely candidate in the turnover of articular cartilage and a potential target for drug development. In this study, RA synovial membrane tissue was shown to express CL-3 mRNA by reverse transcriptase-polymerase chain reaction (RT-PCR) and protein by immunohistochemistry. Fibroblasts isolated and cultured from RA synovial membrane tissue were induced to express CL-3 mRNA. CL-3 mRNA was detected after PMA treatment in 16 of the 18 RA synovial membrane fibroblast cell lines established for this study. These fibroblasts also expressed mRNA for collagenase-1 (CL-1, MMP-1), membrane type-1 matrix metalloproteinase, gelatinase A, gelatinase B, stromelysin-1, stromelysin-2, TIMP-1, and TIMP-2. They were further shown to express CL-1 mRNA constitutively and CL-3 mRNA only after stimulation with PMA, IL-1, TGF-beta1, TNF-alpha, or IL-6 with IL-6sR. These fibroblasts also expressed after induction both CL-1 and CL-3 at the protein level as determined by Western blot analyses and immunofluorescence.
- CC Enzymes - General and Comparative Studies; Coenzymes *10802
Cytology and Cytochemistry - Animal *02506
Biochemical Studies - General *10060
 Biochemical Studies - Nucleic Acids, Purines and Pyrimidines
 *10062
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Endocrine System - General *17002
 Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry *18004
 Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology
 *18006
 Immunology and Immunochemistry - Immunopathology, Tissue Immunology *34508
 Allergy *35500
- IT Major Concepts
 Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and Molecular Biophysics); Skeletal System (Movement and Support)
- IT Parts, Structures, & Systems of Organisms
 articular cartilage: degradation, skeletal system; synovial fibroblast: skeletal system
- IT Diseases
 rheumatoid arthritis: connective tissue disease, immune system disease, joint disease
- IT Chemicals & Biochemicals
 CL-3 messenger RNA; IL-6 [interleukin-6]; IL-6sR [interleukin-6sR]; TGF-beta-1 [transforming growth factor-beta-1]; TIMP-1 [tissue inhibitor of matrix metalloproteinase-1]; TNF-alpha [tumor necrosis factor-alpha]; collagen type II; **collagenase-3**: induction; gelatinase A; gelatinase B; matrix metalloproteinase; stromelysin-1; stromelysin-2; synovial membrane
- IT Alternate Indexing
 Arthritis, Rheumatoid (MeSH)
- IT Methods & Equipment
 Western blot analysis: analytical method; immunofluorescence: analytical method, immunological method; reverse transcriptase-polymerase chain reaction [RT-PCR]: analytical method
- RN 140208-24-8 (TIMP-1)
 175449-82-8 (COLLAGENASE-3)
 146480-35-5 (GELATINASE A)
 146480-36-6 (GELATINASE B)
 141907-41-7 (MATRIX METALLOPROTEINASE)

79955-99-0 (STROMELYSIN-1)
140610-48-6 (STROMELYSIN-2)

- L137 ANSWER 2 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
 AN 2000:490084 BIOSIS
 DN PREV200000490205
 TI Messenger ribonucleic acid expression of 16 matrix metalloproteinases in bone-implant interface tissues of loose artificial hip joints.
 AU Takei, Isao (1); Takagi, Michiaki; Santavirta, Seppo; Ida, Hideo; Ishii, Masaji; Ogino, Toshihiko; Ainola, Mari; Konttinen, Yrjo T.
 CS (1) Department of Orthopedic Surgery, Yamagata University School of Medicine, 2-2-2 Iida-Nishi, Yamagata, 990-9585 Japan
 SO Journal of Biomedical Materials Research, (December 15, 2000)
 Vol. 52, No. 4, pp. 613-620. print.
 ISSN: 0021-9304.
 DT Article
 LA English
 SL English
 AB Matrix metalloproteinases (MMPs) have been reported to be the major factors responsible for aseptic loosening of artificial hip joints. So far, messenger ribonucleic acid (mRNA) expression patterns of seven MMPs have been reported, but that of many other MMPs which have been newly discovered or recently considered to be responsible for prosthetic loosening is still unknown. In this study, mRNA expression pattern of 16 different types of MMPs were analyzed to evaluate which MMPs were locally produced and contributed to prosthetic loosening. Synovium-like interface tissues between bone and prosthesis were collected from 18 cases of aseptic loose artificial hip joint at revision surgery. Six cases of normal synovium were used as controls. Total RNA was extracted by single-step acid guanidinium-thiocyanate-phenol-chloroform procedure. mRNA expression of MMPs was analyzed by semiquantitative reverse transcription-polymerase chain reaction. Based on local expression pattern of MMPs at the mRNA level, aseptic loose artificial hip joint was characterized by elevated expression of MMP-1, MMP-9, MMP-10, MMP-12, and **MMP-13**; moderate expression of MMP-2, MMP-7, MMP-8, MMP-11, membrane type (MT)1-MMP (MMP-14), MT2-MMP (MMP-15), MT3-MMP (MMP-16), MT4-MMP (MMP-17), and MMP-19; lower expression of MMP-3; and little significance of MMP-20. The MMPs detected in this study can potentially degrade almost all components of the periprosthetic extracellular matrix. Thus, many MMP type enzymes possibly contribute to prosthetic loosening and osteolysis through pathologic extracellular matrix degradation and connective tissue/bone remodeling around prostheses.
 CC Enzymes - General and Comparative Studies; Coenzymes *10802
 Biochemical Studies - Nucleic Acids, Purines and Pyrimidines
 *10062
 Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry *18004
 BC Hominidae 86215
 IT Major Concepts
 Enzymology (Biochemistry and Molecular Biophysics); Equipment, Apparatus, Devices and Instrumentation; Skeletal System (Movement and Support)
 IT Parts, Structures, & Systems of Organisms
 bone: skeletal system; hip joint: skeletal system; synovium: skeletal system
 IT Chemicals & Biochemicals
 MMP-1 [matrix metalloproteinase-1]: expression; MMP-10 [matrix metalloproteinase-10]: expression; MMP-11 [matrix metalloproteinase-11]: expression; MMP-12 [matrix metalloproteinase-12]: expression; **MMP-13 [matrix metalloproteinase-13]: expression**; MMP-19 [matrix metalloproteinase-19]: expression; MMP-2 [matrix metalloproteinase-2]: expression; MMP-20

[matrix metalloproteinase-20]: expression; MMP-3 [matrix metalloproteinase-3]: expression; MMP-7 [matrix metalloproteinase-7]: expression; MMP-8 [matrix metalloproteinase-8]: expression; MMP-9 [matrix metalloproteinase-9]: expression; MT1-MMP [MMP-14, membrane type 1-matrix metalloproteinase]: expression; MT2-MMP [MMP-15, membrane type 2-matrix metalloproteinase]: expression; MT3-MMP [MMP-16, membrane type 3-matrix metalloproteinase]: expression; MT4-MMP [MMP-17, membrane type 4-matrix metalloproteinase]: expression; messenger RNA: expression

IT Methods & Equipment

artificial hip joint: aseptic loosening, prosthetic; reverse transcriptase-polymerase chain reaction: analytical method

ORGN Super Taxa

Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name

human (Hominidae): patient

ORGN Organism Superterms

Animals; Chordates; Humans; Mammals; Primates; Vertebrates

RN 9001-12-1 (MATRIX METALLOPROTEINASE-1)
 140610-48-6 (MATRIX METALLOPROTEINASE-10)
 145267-01-2 (MMP-11)
 145267-01-2 (MATRIX METALLOPROTEINASE-11)
 9004-06-2 (MMP-12)
 9004-06-2 (MATRIX METALLOPROTEINASE-12)
 175449-82-8 (MMP-13)
 175449-82-8 (MATRIX METALLOPROTEINASE-13)
 188364-80-9 (MATRIX METALLOPROTEINASE-19)
 146480-35-5 (MMP-2)
 146480-35-5 (MATRIX METALLOPROTEINASE-2)
 185766-51-2 (MATRIX METALLOPROTEINASE-20)
 79955-99-0 (MMP-3)
 79955-99-0 (MATRIX METALLOPROTEINASE-3)
 141256-52-2 (MMP-7)
 141256-52-2 (MATRIX METALLOPROTEINASE-7)
 9001-12-1 (MMP-8)
 9001-12-1 (MATRIX METALLOPROTEINASE-8)
 146480-36-6 (MMP-9)
 146480-36-6 (MATRIX METALLOPROTEINASE-9)
 161384-17-4 (MT1-MMP)
 161384-17-4 (MEMBRANE TYPE 1-MATRIX METALLOPROTEINASE)
 172308-17-7 (MT2-MMP)
 182970-56-5 (MEMBRANE TYPE 3-MATRIX METALLOPROTEINASE)
 203810-08-6 (MT4-MMP)

L137 ANSWER 3 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AN 2000:452357 BIOSIS

DN PREV200000452357

TI **Matrix metalloproteinase-13** expression in rabbit knee joint connective tissues: Influence of maturation and response to injury.

AU Le Graverand, Marie-Pierre Hellio; Eggerer, Jonna; Sciore, Paul; Reno, Carol; Vignon, Eric; Otterness, Ivan; Hart, David A. (1)

CS (1) McCaig Centre for Joint Injury and Arthritis Research, University of Calgary HSC, 3330 Hospital Drive N.W., Calgary, AB, T2N 4N1 Canada

SO Matrix Biology, (September, 2000) Vol. 19, No. 5, pp. 431-441.

print.

ISSN: 0945-053X.

DT Article

LA English

SL English

AB The hypothesis of the present work was that expression of **matrix metalloproteinase-13 (MMP-13, collagenase-3)** would be induced during conditions

involving important matrix remodeling such as ligament maturation, scar healing and joint instability. Therefore, **MMP-13** expression in the medial collateral ligament (MCL) during the variable situations of tissue maturation and healing was assessed. **MMP-13** expression in three intra-articular connective tissues of the knee (i.e. articular cartilage, menisci and synovium) following the transection of the anterior cruciate ligament of the knee was evaluated at 3 and 8 weeks post-injury. **MMP-13** mRNA (semi-quantitative RT-PCR) and protein (immunohistochemistry and Western blotting) were detected in all of the tissues studied. Significantly higher MCL mRNA levels for **MMP-13** were detected during the early phases of tissue maturation (i.e. 29 days in utero and 2-month-old rabbits) compared to later phases (5- and 12-month-old rabbits). This pattern of expression was recapitulated following MCL injury, with very high levels of expression in scar tissue at 3 weeks post-injury and then a decline to levels not significantly different from control values by 14 weeks. Elevated mRNA levels correlated with increased protein levels for **MMP-13** in both menisci and synovium following the transection of the anterior cruciate ligament and during medial collateral ligament healing. These results indicate that **MMP-13** expression is regulated by a number of variables and that high levels of expression occur in situations when connective tissue remodeling is very active.

CC Enzymes - General and Comparative Studies; Coenzymes *10802
 Biochemical Studies - Nucleic Acids, Purines and Pyrimidines
 *10062

Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology
 and Biochemistry *18004

BC Leporidae 86040

IT Major Concepts
 Enzymology (Biochemistry and Molecular Biophysics); Skeletal System
 (Movement and Support)

IT Parts, Structures, & Systems of Organisms
 knee joint connective tissues: skeletal system; medial collateral
 ligament: skeletal system

IT Chemicals & Biochemicals
 mRNA [messenger RNA]; matric metalloproteinase-13

IT Miscellaneous Descriptors
 connective tissue remodeling; gene expression

ORGN Super Taxa
 Leporidae; Lagomorpha, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
 rabbit (Leporidae)

ORGN Organism Superterms
 Animals; Chordates; Lagomorphs; Mammals; Nonhuman Mammals; Nonhuman
 Vertebrates; Vertebrates

L137 ANSWER 4 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AN 1998:267294 BIOSIS

DN PREV199800267294

TI Collagenase 1 and collagenase 3 expression in a guinea
 pig model of osteoarthritis.

AU Huebner, Janet L.; Otterness, Ivan G.; Freund, Edward M.; Caterson, Bruce;
 Kraus, Virginia B. (1)

CS (1) Dep. Med., Div. Rheumatol. Allergy Clinical Immunol., Box 3416, Duke
 Univ. Med. Cent., Durham, NC 27710 USA

SO Arthritis & Rheumatism, (May, 1998) Vol. 41, No. 5, pp. 877-890.
 ISSN: 0004-3591.

DT Article

LA English

AB Objective. To analyze the in vivo compartmental expression of collagenases
 1 and 3 (MMP-1 and **MMP13**) in the Hartley guinea pig model of
 spontaneously occurring osteoarthritis (OA) for the purpose of

elucidating their roles in the pathogenesis of OA. Methods. Competitive reverse transcription polymerase chain reaction (RT-PCR) and immunohistochemistry quantification of messenger RNA (mRNA) and protein levels in medial and lateral tibia) cartilage obtained from the knee joints of 2-month-old (no OA) and 12-month-old (OA) guinea pigs. Results. The patterns of mRNA expression of collagenases 1 and 3 varied with the age of the animal and the compartment of the knee. We also found focal areas of collagenase 1 and **collagenase 3** proteins localized to the extracellular matrix of OA lesion sites, coincident with three-quarter/one-quarter collagen cleavage. **Collagenase 3** protein was also abundant throughout the medial tibial cartilage of 2-month-old animals. Conclusion. This represents the first description of bona fide collagenase 1 in a rodent species. Recent evidence, however, based on analysis of mitochondrial DNA homologies, suggests that the guinea pig is not a member of the order Rodentia and may be more closely allied with lagomorphs. This taxonomic controversy leaves open to question the issue of the expression of collagenase 1 in other rodents, such as mice and rats. The presence of active collagenases 1 and 3 at OA lesion sites is consistent with an important role of these enzymes in the cartilage degradation of OA in guinea pigs. The expression of **collagenase 3** in medial tibial cartilage from 2-month-old guinea pigs may signify a role of this enzyme in cartilage remodeling with growth and development, or it may represent an early molecular manifestation of OA.

- CC **Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry *18004**
Biochemical Studies - Nucleic Acids, Purines and Pyrimidines *10062
 Biochemical Studies - Proteins, Peptides and Amino Acids *10064
 Enzymes - Physiological Studies *10808
 Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease *12508
Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology *18006
 BC Caviidae 86300
 IT Major Concepts
 Enzymology (Biochemistry and Molecular Biophysics); Skeletal System (Movement and Support)
 IT Parts, Structures, & Systems of Organisms
 tibial cartilage: skeletal system
 IT Diseases
osteoarthritis: joint disease, pathogenesis
 IT Chemicals & Biochemicals
 collagenase I: in vivo compartmental expression; **collagenase 3**: in vivo compartmental expression; mRNA [messenger RNA]
 ORGN Super Taxa
 Caviidae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
 ORGN Organism Name
 Hartley guinea-pig (Caviidae): animal model
 ORGN Organism Superterms
 Animals; Chordates; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Rodents; Vertebrates
- L137 ANSWER 5 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
 AN 1998:226134 BIOSIS
 DN PREV199800226134
 TI Cloning of the gene for interstitial **collagenase-3 (matrix metalloproteinase-13)** from rabbit synovial fibroblasts: Differential expression with collagenase-1 (matrix metalloproteinase-1).
 AU Vincenti, Matthew P. (1); Coon, Charles I.; Mengshol, J. Andrew; Yocum, Sue; Mitchell, Peter; Brinckerhoff, Constance E.
 CS (1) Dep. Med., Dartmouth Med. Sch., Hanover, NH 03755 USA

- SO Biochemical Journal, (April, 1998) Vol. 331, No. 1, pp. 341-346.
ISSN: 0264-6021.
- DT Article
- LA English
- AB Cartilage, bone and the interstitial stroma, composed largely of the interstitial collagens, types I, II and III, are remodelled by three members of the metalloproteinase (MMP) family, collagenase-1 (MMP-1), collagenase-2 (MMP-8) and **collagenase-3 (MMP-13)**. MMP-1 and **MMP-13** may contribute directly to disease progression, since they are induced in patients with **rheumatoid arthritis** and **osteoarthritis**. The study of MMP-1 and **MMP-13** gene regulation in models of **arthritic** disease has been problematic because mice and rats, which are typically used, only possess a homologue of **MMP-13**. Here we show that in contrast with mice and rats, rabbits possess distinct genes homologous to human MMP-1 and **MMP-13**. Furthermore, rabbit **MMP-13** is expressed simultaneously with MMP-1 in chondrocytes and synovial fibroblasts in response to the cytokines interleukin-1 and tumour necrosis factor-alpha, or the phorbol ester PMA. The time course of **MMP-13** induction is more rapid and transient than that of MMP-1, suggesting that distinct mechanisms regulate the expression of these two collagenases. We have cloned the rabbit **MMP-13** gene from synovial fibroblasts and demonstrated that the rabbit gene shares greater homology with human **MMP-13** than does the mouse interstitial collagenase. Together with the fact that mice and rats do not possess a homologue to human MMP-1, our data suggest that the rabbit provides an appropriate model for studying the roles of interstitial collagenases in connective-tissue diseases, such as **rheumatoid arthritis** and **osteoarthritis**.
- CC Enzymes - Chemical and Physical *10806
Genetics and Cytogenetics - Animal *03506
Biochemical Studies - Nucleic Acids, Purines and Pyrimidines
***10062**
Replication, Transcription, Translation *10300
Endocrine System - Gonads and Placenta *17006
Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry *18004
- BC Leporidae 86040
- IT Major Concepts
Enzymology (Biochemistry and Molecular Biophysics); Molecular Genetics (Biochemistry and Molecular Biophysics); Skeletal System (Movement and Support)
- IT Parts, Structures, & Systems of Organisms
synovial fibroblast: skeletal system
- IT Diseases
osteoarthritis: joint disease; rheumatoid arthritis: connective tissue disease, immune system disease, joint disease
- IT Chemicals & Biochemicals
collagenase-1: matrix metalloproteinase-1; interstitial
collagenase-3: differential expression, matrix metalloproteinase-13
- IT Methods & Equipment
gene cloning
- IT Miscellaneous Descriptors
nucleotide sequence
- ORGN Super Taxa
Leporidae: Lagomorpha, Mammalia, Vertebrata, Chordata, Animalia
- ORGN Organism Name
rabbit (Leporidae)
- ORGN Organism Superterms
Animals; Chordates; Lagomorphs; Mammals; Nonhuman Mammals; Nonhuman

Vertebrates; Vertebrates

L137 ANSWER 6 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AN 1997:294543 BIOSIS

DN PREV199799593746

TI **Collagenase-3 (MMP-13)** is expressed during human fetal ossification and re-expressed in postnatal bone remodeling and in **rheumatoid arthritis**.

AU Stahle-Backdahl, Mona (1); Sandstedt, Bengt; Bruce, Kerstin; Lindahl, Anders; Jimenez, Maria G.; Vega, Jose A.; Lopez-Otin, Carlos

CS (1) Dep. Dermatology, Karolinska Hospital, Box 120, S-171 76 Stockholm Sweden

SO Laboratory Investigation, (1997) Vol. 76, No. 5, pp. 717-728.
ISSN: 0023-6837.

DT Article

LA English

AB To explore possible physiologic functions for the metalloproteinase **collagenase-3**, we have examined its temporal and spatial expression during human fetal development. Except for mesenchymal cells in the umbilical cord at 4 weeks of gestation, signal for **collagenase-3** mRNA was confined to mineralizing skeletal tissue and detected in hypertrophic chondrocytes and osteoblastic cells involved in ossification beginning at 10 weeks and continuing through gestation. These cells were also immunoreactive with **collagenase-3** antiserum, indicating their ability to produce **collagenase-3** protein. In osteoblastic cells, the expression of membrane-type 1 metalloproteinase and 72-kd gelatinase mRNA, which have the capacity to activate **collagenase-3** in vitro, colocalized with that of **collagenase-3**. In postnatal tissues, **collagenase-3** was re-expressed in processes involving skeletal remodeling, such as bone cysts and ectopic bone and cartilage formation. Multinucleated osteoclasts were consistently negative for **collagenase-3**. Furthermore, in patients with seropositive **rheumatoid arthritis**, expression of **collagenase-3** was prominent in articular cartilage, and **collagenase-3** protein was detected by immunoblotting in synovial fluids. Consistent with its substrate specificities, a plausible function for **collagenase-3** in these processes is to preferentially degrade type 11 collagen, thus serving a role during primary ossification, in skeletal remodeling, and in destructive joint disease.

CC **Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**
10062

Biochemical Studies - Proteins, Peptides and Amino Acids *10064

Biophysics - Molecular Properties and Macromolecules *10506

Enzymes - Physiological Studies *10808

Anatomy and Histology, General and Comparative - Regeneration and

Transplantation *11107

Pathology, General and Miscellaneous - Inflammation and Inflammatory
Disease *12508

Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology
*18006

Developmental Biology - Embryology - Morphogenesis, General *25508

Immunology and Immunochemistry - Immunopathology, Tissue Immunology
*34508

BC Hominidae *86215

IT Major Concepts

Biochemistry and Molecular Biophysics; Clinical Immunology (Human
Medicine, Medical Sciences); Development; Enzymology (Biochemistry and
Molecular Biophysics); Pathology; Physiology; Skeletal System (Movement
and Support)

IT Chemicals & Biochemicals
GELATINASE

IT Miscellaneous Descriptors
COLLAGENASE-3; CONNECTIVE TISSUE DISEASE;
 ENZYMOLOGY; EXPRESSION; FETAL OSSIFICATION; FETUS; GELATINASE MESSENGER
 RNA; IMMUNE SYSTEM DISEASE; JOINT DISEASE; **MATRIX**
METALLOPROTEINASE-13; NEONATE; POSTNATAL BONE
 REMODELING; **RHEUMATOID ARTHRITIS**; SKELETAL SYSTEM

ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
 human (Hominidae)

ORGN Organism Superterms
 animals; chordates; humans; mammals; primates; vertebrates

RN 9040-48-6 (GELATINASE)

L137 ANSWER 7 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
 AN 1996:311920 BIOSIS
 DN PREV199699034276
 TI The new collagenase, **collagenase-3**, is expressed and
 synthesized by human chondrocytes but not by synoviocytes: A role in
osteoarthritis.
 AU Reboul, Pascal; Pelletier, Jean-Pierre; Tardif, Ginette; Cloutier,
 Jean-Marie; Martel-Pelletier, Johanne (1)
 CS (1) Rheumatic Disease Unit, Notre-Dame Hosp., 1560 Sherbrooke St. East,
 Montral, PQ H2L 4K8 Canada
 SO Journal of Clinical Investigation, (1996) Vol. 97, No. 9, pp. 2011-2019.
 ISSN: 0021-9738.
 DT Article
 LA English
 AB Recently, a new human collagenase, **collagenase-3** has
 been identified. Since collagen changes are of particular importance in
 cartilage degeneration, we investigated if **collagenase-3**
 plays a role in **osteoarthritis** (OA). Reverse transcriptase-PCR
 analysis revealed that in articular tissues **collagenase-**
3 was expressed by the chondrocytes but not by the synoviocytes.
 Northern blot analysis of the chondrocyte mRNA revealed the presence of
 two major gene transcripts of 3.0 and 2.5 kb, and a third one of 2.2 kb
 was occasionally present. Compared to normal, OA showed a significantly
 higher (3.0 kb, P ltoreq 0.05; 2.5 kb, P ltoreq 0.03) level of
collagenase-3 mRNA expression. **Collagenase-**
3 had a higher catalytic velocity rate (about fivefold) than
 collagenase-1 on type II collagen. With the use of two specific
 antibodies, we showed that human chondrocytes had the ability to produce
collagenase-3 as a proenzyme and as a glycosylated
 doublet. The chondrocyte **collagenase-3** protein is
 produced in a significantly higher (P ltoreq 0.04) level in OA (apprx
 9.5-fold) than in normal. The synthesis and expression of this new
 collagenase could also be modulated by two proinflammatory cytokines,
 IL-1-beta and TNF-alpha, in a time- and dose-dependent manner. This study
 provides novel and interesting data on **collagenase-3**
 expression and synthesis in human cartilage cells and suggest its
 involvement in human OA cartilage pathophysiology.

CC Cytology and Cytochemistry - Human *02508
Biochemical Studies - Nucleic Acids, Purines and Pyrimidines
10062
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064
 Enzymes - Methods *10804
 Enzymes - Physiological Studies *10808
 Pathology, General and Miscellaneous - Inflammation and Inflammatory
 Disease *12508
 Endocrine System - General *17002
Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology
***18006**
 BC Hominidae *86215

IT Major Concepts
 Cell Biology; Endocrine System (Chemical Coordination and Homeostasis);
 Enzymology (Biochemistry and Molecular Biophysics); Pathology; Skeletal
 System (Movement and Support)

IT Chemicals & Biochemicals
 COLLAGENASE

IT Miscellaneous Descriptors
 CARTILAGE DEGENERATION; INFLAMMATION; INTERLEUKIN-1BETA; MESSENGER RNA;
 REVERSE TRANSCRIPTASE POLYMERASE CHAIN REACTION; TUMOR NECROSIS
 FACTOR-ALPHA

ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
 Hominidae (Hominidae)

ORGN Organism Superterms
 animals; chordates; humans; mammals; primates; vertebrates

RN 9001-12-1 (COLLAGENASE)

L137 ANSWER 8 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
 AN 1996:238378 BIOSIS
 DN PREV199698786507
 TI Cloning of **collagenase 3** from the synovial membrane
 and its expression in **rheumatoid arthritis** and
osteoarthritis.
 AU Wernicke, Dirk (1); Seyfert, Christine; Hinzmann, Bernd; Gromnica-Ihe,
 Erika
 CS (1) Max-Delbrueck-Centrum Molekularie Medizin, Robert-Roessle-Str. 10,
 Berlin 13 122 Germany
 SO Journal of Rheumatology, (1996) Vol. 23, No. 4, pp. 590-595.
 ISSN: 0315-162X.
 DT Article
 LA English
 AB Objective. To analyze synovial membrane of patients with
rheumatoid arthritis (RA) for the expression of unknown
 matrix metalloproteinases (MMP). Methods. Degenerate oligonucleotides
 corresponding to highly conserved regions of the MMP gene family and the
 rapid amplification of cDNA ends (RACE) method have been used to search
 for new members of this gene family. MMP gene expression has been
 characterized by Northern blot analysis. Results. We cloned a MMP cDNA
 from the synovial membrane that is completely identical to the recently
 published **collagenase 3** cDNA derived from a human
 breast cancer cDNA library (Freije, et al: J Biol Chem 1994;269:16766-73).
Collagenase 3 is expressed in parallel with interstitial
 collagenase and stromelysin 1 in RA and **osteoarthritis** (OA).
Collagenase 3 gene expression was not detected in
 several normal human tissues. Conclusion. The expression of
collagenase 3 in the synovial membrane in RA and OA
 suggests its involvement in articular tissue degradation.

CC **Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**
 10062
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064
 Biophysics - Molecular Properties and Macromolecules *10506
 Biophysics - Membrane Phenomena *10508
 Enzymes - Chemical and Physical *10806
 Chordate Body Regions - Extremities *11318
 Pathology, General and Miscellaneous - Inflammation and Inflammatory
 Disease *12508
Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology
***18006**
 Immunology and Immunochemistry - Immunopathology, Tissue Immunology
 *34508

BC Hominidae *86215
 IT Major Concepts

Biochemistry and Molecular Biophysics; Clinical Immunology (Human Medicine, Medical Sciences); Enzymology (Biochemistry and Molecular Biophysics); Membranes (Cell Biology); Morphology; Pathology; Skeletal System (Movement and Support)

IT Chemicals & Biochemicals
COLLAGENASE

IT Miscellaneous Descriptors
COMPLEMENTARY DNA; CONNECTIVE TISSUE DEGRADATION; JOINT DESTRUCTION;
MATRIX METALLOPROTEINASE; MESSENGER RNA

ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
human (Hominidae)

ORGN Organism Superterms
animals; chordates; humans; mammals; primates; vertebrates

RN 9001-12-1 (COLLAGENASE)

L137 ANSWER 9 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1996:238311 BIOSIS
DN PREV199698786440
TI Cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic** cartilage.

AU Mitchell, Peter G. (1); Magna, Holly A.; Reeves, Lisa M.; Lopresti-Morrow, Lori L.; Yocum, Sue A.; Rosner, Philip J.; Geoghegan, Kieran F.; Hambor, John E.
CS (1) Pfizer Central Res., Eastern Point Rd., Groton, CT 06340 USA
SO Journal of Clinical Investigation, (1996) Vol. 97, No. 3, pp. 761-768.
ISSN: 0021-9738.

DT Article
LA English
AB Proteolysis of triple-helical collagen is an important step in the progression toward irreversible tissue damage in **osteoarthritis**. Earlier work on the expression of enzymes in cartilage suggested that collagenase-1 (MMP-1) contributes to the process. Degenerate reverse transcription polymerase chain reaction experiments, Northern blot analysis, and direct immunodetection have now provided evidence that **collagenase-3 (MMP-13)**, an enzyme recently cloned from human breast carcinoma, is expressed by chondrocytes in human **osteoarthritic** cartilage. Variable levels of **MMP-13** mRNA were present in total RNA prepared from six **osteoarthritic** cartilage samples. Expression of both **MMP-13** and MMP-1 in cartilage was significantly induced at both the message and protein levels by interleukin-1-alpha. Recombinant **MMP-13** cleaved type II collagen to give characteristic 3/4 and 1/4 fragments; however, **MMP-13** turned over type II collagen at least 10 times faster than MMP-1. Experiments with intact type II collagen as well as a synthetic peptide suggested that **MMP-13** cleaved type II collagen at the same bond as MMP-1, but this was then followed by a secondary cleavage that removed three amino acids from the 1/4 fragment amino terminus. The expression of **MMP-13** in **osteoarthritic** cartilage and its activity against type II collagen suggest that the enzyme plays a significant role in cartilage collagen degradation, and must consequently form part of a complex target for proposed therapeutic interventions based on collagenase inhibition.

CC **Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**
10062
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biophysics - Molecular Properties and Macromolecules *10506
Enzymes - Chemical and Physical *10806
Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease *12508

Pathology, General and Miscellaneous - Therapy *12512
Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology
***18006**

BC Hominidae *86215

IT Major Concepts
 Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and
 Molecular Biophysics); Pathology; Skeletal System (Movement and
 Support)

IT Miscellaneous Descriptors
 ENZYME STRUCTURE; MESSENGER RNA; THERAPY PLANNING

ORGN Super Taxa
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
 Hominidae (Hominidae)

ORGN Organism Superterms
 animals; chordates; humans; mammals; primates; vertebrates

=> fil wpix
 FILE 'WPIX' ENTERED AT 17:08:54 ON 13 NOV 2002
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=> d all abeq tech abex tot l151

L151 ANSWER 1 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 2002-171797 [22] WPIX

DNC C2002-053215

TI Novel genetic variants of **matrix metalloproteinase**
13 (collagenase 3) gene useful in studying
 expression and function of the protein, and for screening drugs to treat
 diseases e.g. cancer and arthritis.

DC B04 D16

IN FINKEL, K; KLIEM, S E; MESSER, C; TANGUAY, D A

PA (GENA-N) GENAISSANCE PHARM INC

CYC 96

PI WO 2002006294 A2 20020124 (200222)* EN 109p C07H000-00

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
 NL OA PT SD SE SL SZ TR TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
 KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU
 SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2001076919 A 20020130 (200236) C07H000-00
 ADT WO 2002006294 A2 WO 2001-US22238 20010713; AU 2001076919 A AU 2001-76919
 20010713
 FDT AU 2001076919 A Based on WO 200206294
 PRAI WO 2000-US22693 20000817; US 2000-217950P 20000713
 IC ICM C07H000-00
 AB WO 200206294 A UPAB: 20020409
 NOVELTY - A polynucleotide (I) comprising a nucleotide sequence which is a
 polymorphic variant of a reference sequence for the **matrix**
metalloproteinase 13 (MMP13) gene,
MMP13 cDNA, or their fragments, is new.
 DETAILED DESCRIPTION - A polynucleotide (I) comprising a nucleotide
 sequence which is a polymorphic variant of a reference sequence for the
matrix metalloproteinase 13 (MMP13)
 gene, **MMP13** cDNA, or their fragments, is new.
 (I) comprises a nucleotide sequence (ss) selected from:
 (a) a sequence (S1) comprising **MMP13** isogene, selected from
 14 isogenes, with regions of a sequence (SS) of 11495, 3364 and 7121 base
 pair (bp) as given in specification, and defined by corresponding set of
 polymorphisms whose locations and identities are given in specification;
 (b) sequence (S2) having fragment of (S1), where the fragment
 comprises one or more polymorphism selected from guanine (G) at PS1, PS5,
 PS6, PS12, PS16, PS17, PS18; thymine (T) at PS2, PS3, PS10, PS13; adenine
 at PS4, PS7, PS8, PS9; cytosine at PS11, PS14, PS15;
 (c) a nucleotide sequence which is complementary to (S1) or (S2); or
 (d) nucleotide sequence from a coding sequence (S3) for **MMP13**
 isogene selected from 8c, 10c and 12c as given in the specification, where
 each of the sequences comprises a nucleotide sequence of 1023 bp as given
 in the specification except at each of polymorphic site (PS) at position
 326, 1080 and 1169; and a fragment of (S3), where the fragment comprises a
 polymorphism selected from T, C, G at position corresponding to nucleotide
 326, 1080 and 1169, respectively.
 INDEPENDENT CLAIMS are also included for the following:
 (1) a recombinant non-human organism (II) transformed or transfected
 with (I);
 (2) an isolated polypeptide (III) comprising a sequence which is a
 polymorphic variant (PV) of a reference sequence for **MMP13**
 protein having a 471 amino acid sequence as given in the specification or
 its fragment and PV comprises one or more variant amino acids selected
 from L and G at a position corresponding to position 109 and 390,
 respectively;
 (3) an isolated monoclonal antibody (Ab) specific for and
 immunoreactive with (III);
 (4) a computer system for storing and analyzing polymorphism data for
MMP13 gene comprising a central processing unit, communication
 interface, display device, input device and database containing the
 polymorphism data, where the polymorphism data comprises the haplotypes
 (HTS) and haplotype pairs (HP) as given in the specification;
 (5) a genome anthology for **MMP13** gene which comprises
MMP13 isogenes defined by haplotypes 1-15 as given in the
 specification;
 (6) haplotyping (M1) **MMP13** gene of an individual comprising
 determining which of the HTS, given in fully defined base pair sequence
 given in the specification, defines one copy or both copies of the
 individuals **MMP13** gene, where a each of the HTS comprises a set
 of polymorphisms or HP consists of first and second HTS which comprises
 first and second sets of polymorphisms whose location and identities are
 given in the specification;
 (7) genotyping (M2) **MMP13** of an individual comprising
 determining for the two copies of **MMP13** gene present in the
 individual, the identity of nucleotide pair at one or more PS from PS1-18,
 where one or more PS have the location and alternative alleles having SS;
 (8) predicting (M3) a haplotype pair for **MMP13** gene of an

individual comprising identifying **MMP13** gene genotype for the individual, where the genotype comprises the nucleotide pair at two or more PS; enumerating all possible haplotype pairs which are consistent with the genotype; comparing the possible haplotype pairs to (HP); and assigning a haplotype pair to the individual that is consistent with the data;

(9) identifying (M4) an association between a trait and at least one HTS or HP of **MMP13** gene, comprising comparing the frequency of HTS or HP in a population exhibiting the trait with the frequency of HTS or HP in reference population, where a higher frequency of HTS or HP in the trait population than in the reference population indicates the trait is associated with HTS or HP;

(10) an isolated genotyping oligonucleotide (especially allele-specific oligonucleotides (ASO)) for detecting a polymorphism in **MMP13** gene at a PS;

(11) screening for drugs targeting (III) by contacting the **MMP13** polymorphic variant with a candidate agent and assaying for binding activity; and

(12) a kit (IV) for genotyping **MMP13** gene of an individual comprising a set of oligonucleotides designed to genotype each of PS.

ACTIVITY - Cytostatic; Antiarthritic.

MECHANISM OF ACTION - Gene therapy. No supporting data is given.

USE - (III) is useful for screening drug targeting (III) comprising contacting (III) with a candidate agent and assaying for binding activity. M1 is useful for haplotyping **MMP13** gene in an individual; M2 is useful for genotyping **MMP13** gene of an individual; M3 is useful for predicting a haplotype pair for **MMP13** gene of an individual; and M4 is useful for identifying an association between a trait and at least one HTS or HP of **MMP13** gene (all claimed).

(I) is useful in studying the expression and function of **MMP13**, and in expressing **MMP13** protein for use in screening for candidate drugs to treat diseases related to **MMP13** activity and in studying the effect of the variation on the biological activity of **MMP13** as well as on the binding affinity of candidate drugs targeting **MMP13** for the treatment of cancer, arthritis. M1 is further used by the pharmaceutical research scientist to validate **MMP13** as a candidate target for, and in design of clinical trials of candidate drugs for, treating a specific condition drugs or disease predicted to be associated with **MMP13** activity. The monoclonal antibody is useful in a variety of diagnostic and prognostic formats and therapeutic methods. (V) is useful in studying expression of the **MMP13** isogenes in vivo, for in vivo screening and testing of drugs targeted against **MMP13** protein, and for testing the efficacy of therapeutic agents and compounds for cancer and arthritis in a biological system. ASO is useful as probes and primers, and for assaying a polymorphism in the target region.

ADVANTAGE - Without requiring any a priori knowledge of the phenotypic effect of any particular **MMP13** HTS or HP, (M1) provides the scientist with a tool to identify lead compounds that are more likely to show efficacy in clinical trials.

Dwg.0/5

FS

CPI

FA

AB; DCN

MC

CPI: B04-C01; B04-E03E; **B04-E05**; B04-G01; B04-G21; B04-N02A; B04-P0100E; B11-C08; B11-C08E3; B11-C08E5; B11-C08F1; B11-C08F3; **B12-K04E**; **B12-K04F**; B14-C03; B14-H01; B14-S03; **D05-H09**; D05-H11A; D05-H12A; **D05-H12D1**; D05-H16A

TECH

UPTX: 20020409

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Polynucleotide: (I) is a DNA molecule and comprises both S1 or S2 and their complement, and further comprises expression regulatory elements operably linked to S1. Preferred Method: In (M1), the determining step comprises identifying the phased sequence of nucleotides present at each of PS1-18 on the one copy

or both copies of the individual's **MMP13** gene. In (M1) and (M2), the determining comprises:

- (a) isolating from the individual a nucleic acid mixture comprising only one of the two copies (or both copies) of **MMP13** gene, or their fragment that are present in the individual;
- (b) amplifying from the nucleic acid mixture a target region containing the selected PS;
- (c) hybridizing a primer extension oligonucleotide to one allele of the amplified target region;
- (d) performing a nucleic acid template-dependent, primer extension reaction on the hybridized genotyping oligonucleotide in the presence of at least two different terminators of the reactions, where terminators are complementary to the alternative nucleotides present at the selected polymorphic site; and
- (e) detecting the presence and identity of the terminator in the extended genotyping oligonucleotide.

In (M4), the trait is a clinical response to a drug targeting **MMP13** gene.

Preferred Composition: The genotyping oligonucleotide is an ASO that specifically hybridizes to an allele of **MMP13** gene at a region containing the polymorphic site, where the ASO comprises a nucleotide sequence (S4) of 18 sequence of defined base pairs as given in the specification such as AGTGACTRGGAGGTG, TTCCCTCKAACTCTT, the complements of (S4); or a sequence from 36 sequence of defined base pairs as given in the specification such as CCTTCAAGTGACTRG, GGTTCCTCACTTCCYA, or the genotyping oligonucleotide is a primer-extension oligonucleotide which comprises a nucleotide sequence from 36 sequence of defined base pairs as given in the specification such as TCAAGTGACT, TTCCACTTCC, GTTTTCCTC.

ABEX

WIDER DISCLOSURE - Also disclosed are:

- (1) a recombinant expression vector (REV) comprising (I);
- (2) a host cell transformed or transfected with REV, where the vector and host cell are useful to express **MMP13** for protein structure analysis and drug binding studies;
- (3) determining the frequency of **MMP13** genotype, haplotype, or haplotype pair in a population, where the frequency data obtained by the method is useful for identifying an association between trait and **MMP13** genotype, haplotype or haplotype pair;
- (4) frequency data for **MMP13** genotypes, HTS, and/or HP determined in reference population and used for identifying an association between trait and **MMP13** genotype, HTS or HP; and
- (5) pharmaceutical composition comprising antisense oligonucleotide directed against one of the novel **MMP13** isogenes, a polynucleotide encoding such an antisense oligonucleotide, or another compound which inhibits expression of a novel **MMP13** isogene.

ADMINISTRATION - (I) is delivered by expression from a vector introduced into the cell or tissue in vivo or ex vivo. The pharmaceutical composition comprising (I) is administered through oral, intravenous, intramuscular, intraarterial, intramedullary, intrathecal, intraventricular, intradermal, transdermal, subcutaneous, intraperitoneal, intranasal, enteral, topical, sublingual or rectal routes. No dosage detail is given.

EXAMPLE - The target regions of matrix metalloproteinase 13 (collagenase 3) (**MMP13**) gene which include 15 fragments were amplified using forward (FP) and reverse primers (RP) having a sequence derived a sequence (S1) of 11495, 3364 and 7121 bp as given in specification such as nucleotide from 3395-3417, complement of 4064-4042; 3763-3784 complement of 4425-4402; 3799-3821, complement of 4346-4324; 452-4072, complement of 4783-4760; 4753-4778, complement of 5542-5521. Polymerase chain reaction (PCR) products of the 15 fragments, were then purified and analyzed for polymorphic sites using Polyphred program Nickerson et al., Nucleic Acids Res. 14:2745-2751, 1997. There were 18 novel polymorphic sites in **MMP13**

gene which corresponded to the following nucleotide positions: 3915 (PS1), 4437 (PS2), 5008 (PS3), 5037 (PS4), 5102 (PS5), 5290 (PS6), 5363 (PS7), 5628 (PS8), 7721 (PS9), 10537 (PS10), 11663 (PS11), 11752 (PS12), 14059 (PS13), 14072 (PS14), 18295 (PS15), 18407 (PS16), 18609 (PS17) and 18866 (PS18).

L151 ANSWER 2 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 2001-615405 [71] WPIX

CR 2001-015003 [66]

DNN N2001-458998 DNC C2001-184222

TI Test kit for monitoring the course and treatment of periodontal disease or peri-implantitis by assaying for mammalian **matrix metalloproteinase 13**.

DC B04 D16 S03

IN GOLUB, L M; SORSA, T; TERONEN, O; TIKANOJA, S H

PA (MEDI-N) MEDIX BIOCHEMICA; (UINY) UNIV NEW YORK STATE RES FOUND

CYC 1

PI US 6280687 B1 20010828 (200171)* 23p G01N021-00

ADT US 6280687 B1 Div ex US 1998-133887 19980813, US 2000-642380 20000821

FDT US 6280687 B1 Div ex US 6143506

PRAI US 1998-133887 19980813; US 2000-642380 20000821

IC ICM G01N021-00

AB US 6280687 B UPAB: 20011203

NOVELTY - Test kit for monitoring the course and treatment of periodontal disease or peri-implantitis comprises assaying for metalloproteinase 13, is new.

DETAILED DESCRIPTION - Test kit for monitoring the course and treatment of periodontal disease or peri-implantitis comprises:

(a) a detectable label;

(b) a molecule that specifically recognizes mammalian **matrix metalloproteinase 13 (MMP-13)** in

gingival crevicular fluid, peri-implant sucular fluid, saliva or mouthrinse samples; and

(c) either:

(i) a stimulant of saliva excretion;

(ii) a solid absorbent site-specific sampling device; or

(iii) a mouthrinse vial.

USE - For monitoring the course and treatment of periodontal disease or peri-implantitis, including AIDS-related periodontal disease.

Dwg.0/7

FS CPI EPI

FA AB; DCN

MC CPI: B04-B04G; B04-B04L; B04-L01; B11-C06; B11-C07A; B11-C08C; B11-C08D2; B11-C08E; B11-C08E3; **B12-K04A; D05-H09**

EPI: S03-E04E; S03-E06; S03-E14H4; S03-E14H5

TECH UPTX: 20011203

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Kit: The **MMP-13**-recognizing molecule is a mono- or polyclonal antibody or antibody fragment and the kit can include a second antibody or antibody fragment reactive with another **MMP-13** epitope. The label is direct or indirect and is suitable for an assay format selected from immunochromatography (especially lateral flow immunochromatography), immunometry, radioimmunoassay, radioimmunometry, enzyme immunoassay, fluoroimmunoassay, luminescence immunoassay, immunoagglutination, hemagglutination, agglutination inhibition, turbidimetric immunoassay and nephelometric immunoassay, especially a flow-through assay format. The kit can also include solid or liquid carriers and/or a molecule that recognizes mammalian matrix metalloproteinase 8 (MMP-8).

ABEX

EXAMPLE - No relevant examples are given.

L151 ANSWER 3 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 2001-015003 [02] WPIX

CR 2001-615405 [57]
DNN N2001-011320 DNC C2001-003990
TI Monitoring the course and treatment of periodontal disease or peri-implantitis comprises detecting increased **matrix metalloproteinase-13** levels.
DC B04 D16 D21 S03
IN GOLUB, L M; SORSA, T; TERONEN, O; TIKANOJA, S H
PA (UYN) UNIV NEW YORK STATE RES FOUND
CYC 1
PI US 6143506 A 20001107 (200102)* 23p G01N033-53
ADT US 6143506 A US 1998-133887 19980813
PRAI US 1998-133887 19980813
IC ICM G01N033-53
AB US 6143506 A UPAB: 20011206
NOVELTY - A method for monitoring the course and treatment of periodontal disease or peri-implantitis comprising collecting a gingival crevicular fluid, peri-implant sulcular fluid, saliva or mouthrinse sample, contacting with a reagent recognizing mammalian **matrix metalloproteinase-13 (MMP-13)**, and detecting **MMP-13**, is new. An increased level of **MMP-13** indicates periodontal disease or peri-implantitis.
USE - The method is useful for monitoring the course and treatment of periodontal disease or peri-implantitis, e.g. periodontal disease associated with human immunodeficiency virus (HIV) infection.
ADVANTAGE - **MMP-13** is directly related to bone resorption associated with periodontal disease or peri-implantitis.
Dwg.0/7
FS CPI EPI
FA AB; DCN
MC CPI: B04-B04G; B04-B04L; B04-G03; B04-G21; B04-G22; B04-L05C; B11-C07A; B12-K04A; D05-H09; D05-H11; D08-A
EPI: S03-E14H4
TECH UPTX: 20010110
TECHNOLOGY FOCUS - BIOLOGY - Preferred Method: The reagent is a labeled monoclonal or polyclonal antibody or antibody fragment directed against human **MMP-13**.
ABEX
EXAMPLE - Peri-implant sulcular fluid (PISF) samples were collected with filter paper strips from peri-implant margins of dental implants surrounded or affected with varying degrees of radiologically detected vertical bone resorption. Bone resorption grade 1 indicated less than 1 mm vertical bone resorption. Bone resorption grade 2 indicated vertical bone resorption between 1-2 mm. Bone resorption grade 3 indicated vertical bone resorption of more than 3 mm. In each bone resorption group n=10. In determining the radiologically detected bone loss the junction area of distance and fixture of inserted dental implant was used as a reference. Gingival index (GI) of peri-implant soft tissues was determined according to the principle of Loe H, (Gingival index (GI), the plaque index and the retention index system. The soft peri-implant mucosal tissue, peri-implant radiographs and the collected PISF samples were analyzed for GI, radiologically detectable bone loss, elastase activities and MMP-13 immunoreactivities using a specific antibody with quantitative immunoblot analysis. The results showed that the GI of the peri-implant mucosa increased in relation to the radiologically detected bone resorption score of the studied dental implants. However, this finding was not statistically significant. Thus, there was a rather weak relation between the severity of the peri-implant mucosal inflammation and irreversible bone resorption of the dental implants. Sixty Clinical indices of peri-implant mucositis were not sensitive enough to express the underlying irreversible bone resorption of dental implant affected by peri-implantitis. Neutrophil elastase activity (a biochemical marker of periodontal inflammation) in PISF did not correlate at all with bone

resorption scores. There was less elastase activity in the group with a bone resorption score of 2 as compared with the group with a bone resorption score of 1, and slightly increased elastase activities were detected in the group with the bone resorption score of 3 as compared with the groups with bone resorption scores of 1 and 2. However, none of these observed differences were statistically significant. This indicated that neutrophil derived biochemical markers in PISF did not reflect clearly enough the irreversible bone resorption associated with clinical loosening of dental implants affected by on-going peri-implantitis. The levels of the MMP-13 immunoreactivities correlated clearly and statistically significantly with the increasing score of bone resorption in the studied dental implants. This suggested that a MMP-family-member evidently produced by adjacent bone cells reflected and to a great extent was responsible for the irreversible peri-implant bone destruction leading to the loss of dental implants.

L151 ANSWER 4 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 2000-619788 [60] WPIX

DNC C2000-185827

TI Use of **collagenase 3** as prognostic indicator of destructive joint disease, specifically rheumatoid arthritis, and for detecting genetic predispositions.

DC B04 D16

IN **FREUDIGER, D; GROMNICA-IHLE, E; SCHULZE WESTHOFF, C; WERNICKE, D**

PA (DELB-N) DELBRUECK CENT MOLEKULARE MEDIZIN MAX

CYC 4

PI DE 19913428 A1 20000928 (200060)* 9p C12Q001-34 <--
WO 2000058502 A2 20001005 (200060) DE C12Q001-00 <--

RW: EA

W: JP US

ADT DE 19913428 A1 DE 1999-19913428 19990325; WO 2000058502 A2 WO 2000-DE881 20000324

PRAI DE 1999-19913428 19990325

IC ICM **C12Q001-00; C12Q001-34**

ICS A61K048-00

AB DE 19913428 A UPAB: 20001123

NOVELTY - Use of **collagenase 3** (I) as prognostic clinical marker of destructive joint disease, is new.

MECHANISM OF ACTION - (I) is implicated in progressive damage to cartilage and bone. It has high catalytic activity against type II collagen (the major collagen of hyaline cartilage) and also degrades many other components of the extracellular matrix. It is only detected in human tissue under pathological conditions.

USE - Measurement of (I) is used for prognosis of the progression of rheumatoid arthritis (RA) and to determine genetic predispositions to developing RA.

ADVANTAGE - Detection of (I) allows early diagnosis of the active phase of disease.

Dwg.0/3

FS CPI

FA AB; DCN

MC CPI: B04-B03C; B04-B04C2; B04-B04L; B04-C01; B04-E03E; **B04-E05;**
B04-F02; B04-G03; B04-L05; B04-N02; B11-A02; B11-C07A4; B11-C08E;
B11-C09; **B12-K04A3; B12-K04E; B12-K04F;**
D05-A01A4; D05-A01B; D05-A02C; D05-H07; D05-H08; **D05-H09;**
D05-H10; D05-H11; D05-H12A; **D05-H12D1;** D05-H18

TECH UPTX: 20001123

TECHNOLOGY FOCUS - BIOLOGY - Preferred method: This involves quantitative and qualitative measurement of:

- (1) expression of mRNA for (I), e.g. by reverse-transcription polymerase chain reaction, Northern blotting or in situ hybridization;
- (2) (I) as an antigen, either the proenzyme or the active form, e.g. by

Western blotting or other immunoassays;
 (3) the catalytic activity of (I), especially by zymography; and/or
 (4) the ratio between (I) and its (non-)specific inhibitors, by
 determining both free (I) and inhibitor-bound (I), as in (2).
 Analysis is performed on tissue samples, e.g. synovial membrane, cartilage
 or bone, or material from the synovial membrane/cartilage junction region
 (obtained e.g. by synovectomy, joint replacement and/or biopsy) or on body
 fluid samples, especially synovial fluid or blood. The clinical
 significance of the method may be increased by measuring additional
 markers, e.g. HLA (human leucocyte antigens), for detecting severe
 progression of rheumatoid arthritis, or a particular HLA pattern, for
 detecting genetic predisposition. Optionally measurements are also made
 for membrane type I matrix metalloprotease and/or gelatinase A.

ABEX

EXAMPLE - 36 patients with confirmed rheumatoid arthritis (RA), in the
 joints of the hands, underwent synovectomy and the surgically removed
 material was analyzed for mRNA by Northern blotting. 21 patients expressed
 mRNA (I) for collagenase 3, in almost all cases together with mRNA for
 membrane type I matrix metalloprotease and/or gelatinase A. Patients who
 expressed (I) had significantly higher levels of the inflammatory markers
 BSG and CRP and also required surgery after a shorter period, indicating a
 more severe progression of disease and/or poorer response to therapy.
 There were no significant differences between expressers and
 non-expressors of (I) as regards the level of rheuma factor or
 differential blood profiles.

L151 ANSWER 5 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 1998-388138 [33] WPIX

DNN N1998-302581 DNC C1998-117544

TI Monoclonal antibodies for separate assays of latent and active
collagenase-3 - useful for diagnosis of rheumatoid
 arthritis and other inflammatory diseases.

DC B04 D16 S03

IN AZUMANO, I; IWATA, K; LOPEZ-OTIN, C; TAMEI, H; YOSHIDA, S

PA (FUJY) FUJI YAKUHHIN KOGYO KK

CYC 19

PI WO 9829560 A1 19980709 (199833)* JA 64p C12P021-08

RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
 W: JP US

ADT JP 10529865 X 20000516 (200034) C12P021-08
 WO 9829560 A1 WO 1997-JP4884 19971226; JP 10529865 X WO 1997-JP4884
 19971226, JP 1998-529865 19971226

FDT JP 10529865 X Based on WO 9829560

PRAI JP 1996-356444 19961226

IC ICM C12P021-08

ICS C07K016-40; G01N033-577

AB WO 9829560 A UPAB: 19980819

Monoclonal antibodies which react with all or part of the peptide sequence
 of **matrix metalloproteinase 13 (MMP**
-13) (collagenase-3) are of three types
 which react respectively with:

(1) the active form of **MMP-13**; (2) the latent
 form of **MMP-13**, and

(3) both the active and latent forms.

The antibodies are obtained by immunising animals using **MMP**
-13 or its partial peptides as an antigen and fusing spleen
 cells with myeloma cells to give hybridomas, which are screened for the
 required activity, the antibody is then purified from the hybridoma
 culture.

USE - The method is useful for the detection and immunoassay of
 active and/or latent **MMP-13** in biological samples such
 as blood, urine, synovial fluid, cerebrospinal fluid or amniotic fluid
 (e.g. by ELISA assay) and for the diagnosis of various types of

inflammatory and neoplastic diseases, such as chronic rheumatoid arthritis and breast cancer.

Dwg.0/8

FS CPI EPI

FA AB

MC CPI: B04-B04B1; B04-B04D5; B04-B04H; B04-G21; B04-N02; B11-C07;

B12-K04A; D05-A02C; **D05-H09**; D05-H11A1

EPI: S03-E14H4

L151 ANSWER 6 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 1996-334618 [34] WPIX

DNC C1996-105718

TI Agent for treating rheumatic diseases esp. arthritis - comprises making **collagenase-3** ineffective, e.g. by inhibiting gene expression, inhibiting activation, inhibiting the enzyme, or inducing natural inhibitors.

DC B04 B05

IN WERNICKE, D

PA (DELB-N) DELBRUECK CENT MOLEKULARE MEDIZIN MAX

CYC 1

PI DE 19501032 A1 19960718 (199634)* 3p A61K038-55

ADT DE 19501032 A1 DE 1995-19501032 19950114

PRAI DE 1995-19501032 19950114

IC ICM A61K038-55

ICS A61K038-19

AB DE 19501032 A UPAB: 19960829

Agent for treatment of rheumatic diseases makes the matrixmetalloprotease **collagenase-3** of the disease ineffective, opt. combined with inhibition of other matrix metalloproteases.

USE - The agent is useful esp. for treating diseases associated with joint destruction such as chronic polyarthritis and osteoarthritis.

Dwg.0/0

FS CPI

FA AB; DCN

MC CPI: B02-T; B03-A; B04-B03C; B04-E06; B04-H02; B04-H06G; B04-H09; B04-N02; B14-C09; B14-D07C; B14-H01

=> d his

(FILE 'HOME' ENTERED AT 15:12:16 ON 13 NOV 2002)
SET COST OFF

FILE 'REGISTRY' ENTERED AT 15:12:27 ON 13 NOV 2002
E COLLAGENASE/CN

L1 1 S E74

L2 24 S COLLAGENASE 3 NOT L1
E GELATINASE/CN

L3 1 S E16
E MTI/CN

FILE 'HCAPLUS' ENTERED AT 15:14:40 ON 13 NOV 2002

L4 616 S L1

L5 35 S L2

L6 377 S COLLAGENASE() (3 OR III OR TYPE() (3 OR III))

L7 561 S (MMP OR MATRIX() (METALLOPROTEINASE OR METALLOPROTEASE OR META

L8 78 S MMP13

L9 774 S L4-L8

E RHEUMATOID ARTHRITIS/CT

L10 227 S E4,E5

E E3+ALL

L11 9884 S E10,E11,E9+NT

L12 425 S E12-E17/BI
 L13 15572 S E9/BI
 E JOINT/CT
 E E6+ALL
 L14 8492 S E6,E5+NT
 L15 7007 S E11,E13/BI
 E E13+ALL
 L16 2421 S E2+NT
 L17 464 S E3,E4/BI
 E CARTILAGE/CT
 L18 3503 S E4-E20
 E E3+ALL
 L19 13998 S E7+NT
 L20 19822 S CARTILAG?
 E BIOPSY
 L21 22874 S E3
 E BIOPSY/CT
 E PROSTHES/CT
 E E18+ALL
 L22 23437 S E5,E4+NT
 L23 28060 S E6-E11/BI
 E PROSTHES/CT
 E E16+ALL
 L24 1598 S ARTIFICIAL(L)JOINT
 L25 248 S L9 AND L10-L24
 L26 238 S L9 AND ?ARTHRIT?
 L27 304 S L25,L26
 E WERNICKE D/AU
 L28 13 S E3,E5
 E GROMNICA E/AU
 L29 16 S E4-E7
 E IHLE E/AU
 L30 1 S E3
 E FREUDIGER D/AU
 L31 2 S E4
 E SCHULZE C/AU
 L32 41 S E3-E6,E19
 E SCHULZE WESTHOFF/AU
 L33 2 S E4
 E WESTHOFF C/AU
 L34 3 S E3,E5,E7
 L35 6 S L9 AND L28-L34
 L36 6 S L27 AND L35
 L37 115 S L9 AND ?RHEUMAT?
 L38 6 S L27 AND L36
 L39 6 S L36,L38
 L40 303 S L27,L37 NOT L39

FILE 'REGISTRY' ENTERED AT 15:27:58 ON 13 NOV 2002

L41 1 S 161384-17-4

FILE 'HCAPLUS' ENTERED AT 15:28:36 ON 13 NOV 2002

L42 624 S L41
 L43 520 S MT1 MMP OR MT MMP1
 L44 97 S MT MMP 1
 L45 745 S L42-L44
 L46 3029 S L3
 L47 1448 S GELATINASE A
 L48 3070 S (MMP OR MATRIX()) (METALLOPROTEINASE OR METALLOPROTEASE OR META
 L49 641 S MMP2
 L50 4043 S L46-L49
 L51 36 S L40 AND L45
 L52 94 S L40 AND L50

L53 102 S L51,L52
 L54 87 S L40 AND (MRNA OR RNA OR ANTIGEN? OR HLA(L)ANTIGEN?)
 L55 167 S L53,L54
 E MRNA/CT
 E E3+ALL
 L56 38 S L40 AND E6,E7,E5+NT
 L57 41 S L40 AND E4+NT
 L58 50 S L40 AND E3+NT
 E E3+ALL
 L59 50 S L56-L58
 L60 43 S L55 AND L59
 L61 46 S L9 AND CONNECTIVE TISSUE
 L62 25 S L61 AND L45,L50
 L63 64 S L60,L62
 L64 20 S L9 (L) (ANT OR ANST)/RL
 L65 130 S L9 (L) (BOC OR OCCU)/RL
 L66 39 S L64,L65 AND L55
 L67 7 S L64,L65 AND L61
 L68 23 S L64,L65 AND L63
 L69 50 S L36,L66-L68
 E SUSCEPTIBILITY/CT
 E E5+ALL
 L70 9331 S E4,E3
 L71 173123 S E5-E8/BI
 E E2+ALL
 L72 9030 S E1
 L73 27605 S E6+NT OR E7+NT
 E GENETIC INHERITANCE/CT
 E E3+ALL
 L74 30 S L9 AND L70-L73
 L75 4 S L74 AND L69
 L76 26 S L74 NOT L75
 SEL DN AN 13
 L77 1 S L76 AND E1-E3
 L78 7 S L39,L77
 L79 6 S L69 AND L78
 L80 44 S L69 NOT L79
 SEL DN AN L80 2 11 13 15 18 19 21 22 24 33 34 36 39 40 42 43 44
 L81 17 S E4-E54
 L82 24 S L78,L81
 L83 4 S L9 AND L10
 L84 83 S L9 AND L11
 L85 3 S L9 AND L12
 L86 100 S L9 AND L13
 L87 245 S L9 AND (?RHEUMAT? OR ?ARTHRIT?)
 L88 18 S L82 AND L83-L87
 L89 24 S L82,L88
 L90 227 S L83-L87 NOT L89
 L91 23 S L90 AND L45
 L92 68 S L90 AND L50
 L93 73 S L91,L92
 L94 8 S L93 AND (PROGNO? OR PREDISPOS? OR PREDICT? OR DIAGNO? OR DETE
 SEL DN AN 5-8
 L95 4 S L94 NOT E55-E66
 L96 28 S L89,L95
 L97 28 S L96 AND (MMP? OR ?METALLOPROTEASE? OR ?METALLOPROTEINASE? OR
 L98 28 S L96 AND L4-L40,L42-L97
 SEL HIT RN

FILE 'REGISTRY' ENTERED AT 16:27:04 ON 13 NOV 2002

L99 5 S E67-E71

FILE 'REGISTRY' ENTERED AT 16:27:29 ON 13 NOV 2002

FILE 'HCAPLUS' ENTERED AT 16:27:36 ON 13 NOV 2002

FILE 'MEDLINE' ENTERED AT 16:38:35 ON 13 NOV 2002

L100 520 S L9
E COLLAGENASE/CT
E E12+ALL
L101 11496 S E11+NT
L102 384 S L100 AND L101
L103 520 S L100,L102
E RHEUMATOID ARTHRITIS/CT
E E3+ALL
E E2+ALL
L104 63530 S E14+NT
L105 162814 S E12+NT
L106 229274 S E6+NT
E SYNOV/CT
E E44+ALL
L107 16369 S E9+NT
L108 101134 S E7+NT
L109 113 S L103 AND L104-L108
L110 161 S A2./CT AND L103
L111 104 S C5./CT AND L103
L112 196 S L109-L111
L113 39 S E1./CT AND L112
L114 0 S DI/CT AND L112
L115 4 S PC/CT AND L112
E PROGNOSIS/CT
E E3+ALL
L116 1 S L113 AND E3+NT
L117 7 S L113 AND L104
L118 2 S L117 AND (D13. OR G5.)/CT
L119 7 S L117 AND E5./CT
L120 7 S L117-L119

FILE 'MEDLINE' ENTERED AT 16:47:18 ON 13 NOV 2002

FILE 'BIOSIS' ENTERED AT 16:47:28 ON 13 NOV 2002

L121 677 S L9
L122 5 S 12504/CC AND L121
SEL DN AN 3
L123 1 S L122 AND E1-E2
L124 110 S 18006/CC AND L121
L125 1 S L122 AND L124
L126 1 S L123,L125

FILE 'BIOSIS' ENTERED AT 16:49:55 ON 13 NOV 2002

L127 107 S L121 AND (10052 OR 10062)/CC
L128 21 S L127 AND L124
L129 44 S L127 AND 1800?/CC
L130 44 S L128,L129 NOT L126
L131 20 S L130 AND PY<=2000
L132 3 S L131 NOT AB/FA
L133 17 S L131 NOT L132
SEL DN AN 4-7 9 11 13 17
L134 9 S L133 NOT E3-E18
L135 7 S L134 AND ?ARTHRIT?
L136 4 S L134 AND ?RHEUMAT?
L137 9 S L134-L136 NOT L126

FILE 'WPIX' ENTERED AT 16:53:32 ON 13 NOV 2002

L138 112 S L6 OR L7 OR L8
E WERNICKE D/AU

L139 3 S E3
E GROMNICA/AU
L140 1 S E4
E IHLE/AU
L141 20 S E7,E9
E FREUDIGER D/AU
L142 1 S E3
E SCHULZE C/AU
L143 52 S E3
E SCHULZE W/AU
L144 226 S E3
L145 1 S E12
E WESTHOFF/AU
L146 2 S L138 AND L139-L145
L147 3 S C12Q/IC,ICM,ICS,ICA,ICI AND L138
L148 12 S L138 AND (B04-E05 OR C04-E05 OR B04-B04A1 OR C04-B04A1 OR B12
L149 11 S L138 AND (D05-H09 OR D05-H12D1 OR D05-H12)/MC
L150 13 S L146-L149
SEL DN AN 1 3 4 6 7 10 13
L151 6 S L150 NOT E1-E18
L152 99 S L138 NOT L139-L151

FILE 'WPIX' ENTERED AT 17:08:54 ON 13 NOV 2002